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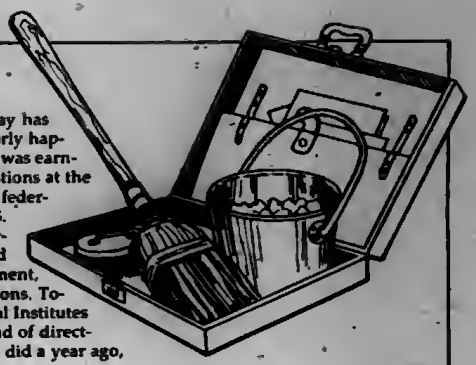

By Bill Laberis
CW Staff

WASHINGTON, D.C. — Charles Day has gone to the dogs, and he isn't particularly happy about it. Fourteen months ago, Day was earning $44,000 a year as chief of DP operations at the Community Service Administration, a federal antipoverty agency within the U.S. Department of Health and Human Services. He controlled and managed CSA's software and standards development, support systems and computer operations. Today, Day is an employee of the National Institutes of Health, also part of HHS. But instead of directing the efforts of 39 other DPers as he did a year ago,

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NEWSPAPER

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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CW Photo by B. Laberis

Disconnecting

It took only four days but a year of planning to move Reuben H. Donnelley's data center seven miles. Here an IBM technician begins the arduous task of dismantling the CPUs. Story on Page 4.

Survey Finds Firms Making Do

Micro-CPU Link Eluding DPers

By Lois Paul
CW Staff

The software just isn't here yet to link effectively their recently acquired microcomputers to their corporate mainframes, representatives of some large U.S. firms told *Computerworld* last week.

Ford Motor Co., for example, has installed about 100 micros, but it has been unable to find software to provide the kind of communications links that are needed. The list of these desired links, according to Ted Danielson, manager of the Finance and Staff Systems Department, "is 30 [items] long and includes not only things like IBM's TSO and IMS and CICS, but also a lot of word processors which are every bit as much of an issue.

"Vendors here and there can solve a piece of the problem," he added. However, Danielson and others surveyed last week indicated they feel nothing that is currently available provides the total solution.

Steve Jenner, a systems consultant with the Petroleum Products Division of Atlantic Richfield Co. in Los Angeles, said his firm is looking for "some kind of quality product that would do file transfers and emulate [IBM] 3278-type devices." What he has encountered is software that links the Hewlett-Packard Co. HP 125 to the HP 3000, and Arco is using that.

Other than the HP software, "we haven't found anything that looks like it is exceptionally good," Jenner said. "There are some hardware devices that we have heard of, but we haven't really looked at them."

Rockwell International Corp.'s Corporate Information Systems Group in Seal Beach, Calif., apparently has looked at some of these techniques. It is currently using some firmware and software, according to Bill Smith, program manager for microcomputers.

One of these is a software product

(Continued on Page 6)

CPUs Vault STC Ultimacc Into IBM-Compatible Mart

By Tom Henkel
CW Staff

WALDWICK, N.J. — STC Ultimacc Systems, Inc., a subsidiary of Storage Technology Corp., entered the market for IBM-compatible processors last week with two systems targeted against IBM's 4341 Model Group 9 and 10 processors.

STC Ultimacc said the systems are based on Magnuson Computer Systems, Inc. M80/30 series central processors. Most peripherals for the system will be supplied by STC, best known for its IBM-compatible memory products.

STC had an OEM agreement with Magnuson when STC was working on its Virtual Storage System (VSS). That relationship was reportedly severed when STC scrapped its plans to develop the VSS [CW, Aug 9].

The Magnuson relationship is a "stopgap measure," Gil C. Kellerman, Jr., STC Ultimacc vice-president for sales, said. STC Ultimacc has evaluated processors from three other manufacturers of IBM plug-compatible mainframes and may switch processor vendors within six to 15 months, he added.

The STC Ultimacc systems are offered only as preconfigured systems with one purchase price that covers the central processor; main memory; operating system; three I/O channels; a double-density, 1.27G-byte STC 8650 disk drive; and a 125 in./

(Continued on Page 8)

Six Times More Powerful Than 3250

PE Brings Out Its Largest Processor Yet

By Tom Henkel
CW Staff

OCEANPORT, N.J. — Its largest processor yet — a multiprocessor up to six times more powerful than its previous top of the line, the 3250 — was announced here last week by Perkin-Elmer Corp.

The 3200MPS, based on the 3250, was designed for engineering and simulation applications. It consists of a 32-bit central processor and up to nine 32-bit Auxiliary Processing Units (APU) that operate in a tightly coupled, asymmetrical fashion and share up to 16M bytes of global main memory, according to PE.

The multiprocessor is software-compatible with existing PE systems. However, the vendor announced an extended version of its OS/32 operating system to handle the 3200MPS multiprocessing features.

Compatible Applications

Applications written for current PE processors can run without modification on the 3200MPS, a spokesman noted, but applications developed on the newly announced processor are not necessarily downward compatible. Existing PE peripherals and hardware interfaces are also compatible with the 3200MPS.

The central processor controls all system operations, including system resources, system scheduling, I/O functions, management of fault conditions and application tasks. In addition, all nine APUs can be attached to the system to handle compute-intensive tasks.

Tasks are scheduled on the APU via a microprogrammed scheduler, which reportedly cuts the high operating system overhead often found in most tightly coupled systems, the vendor said. The APUs can be segmented to perform specific tasks, or the central processor can automati-

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More Speed at Same Price

Second IBM 3800 Laser Printer Out

By Tom Henkel
CW Staff

RYE, N.Y. — IBM last week replaced its 3800 Model 1 laser printer with the Model 3, a unit that the company said is twice as fast and offers enhanced capabilities but carries the same purchase price.

The Model 3 can produce up to 20,040 line/min of combined text and graphics with finer lines and better definition than the Model 1, according to IBM. Furthermore, the unit is capable of printing correspondence-quality output in up to four type styles while the Model 1 can handle only one type style per document.

In announcing the new printer, IBM also cut the price on the 3800 Model 1 by about 15%. Both the Model 1 and Model 3 now cost $315,000, and each can be rented for $13,000/mo.

As of Feb. 1, leasing options for the Model 1 will be withdrawn. Leasing options for the Model 3 are available only through IBM Credit Corp.

Current Model 1 users can move to the Model 3 by purchasing a $125,000 field-upgrade kit. That means a user who purchased a Model 1 at its orginal price of $375,000 and now pays $125,000 to upgrade to a Model 3 will spend $500,000 for a machine that costs $315,000.

The Model 3 combines electrophotographic and laser technologies to produce original documents. Unlike the Model 1, the Model 3 uses a split-beam laser to improve document resolution. This, IBM said, makes the Model 3 suitable for text processing, in-house publishing and business graphics as well as computer output.

In addition, the Model 3 can print on plain paper, preprinted forms or forms created during the print process.

Other Features

Other features of the Model 3 include:

- A print density of 240 by 240 dot/sq in.
- Up to 59 character sets, 23 of which are designed for text processing. Any four character sets can be interchanged within a single document.
- A variable vertical spacing feature which allows up to 10 line/in. This, IBM said, can cut paper costs by condensing data on fewer pages. The Model 3 supports the 6-, 8- and 12 line/in. vertical spacing formats available on the Model 1.
- A set of software tools including tests and aids that reportedly make maintenance easier.

IBM also announced for the Model 3 a second "all-points-addressable" mode that offers variable graphics features. That mode, IBM said, depends on future software announcements. A spokesman could not state when those software enhancements would be available.

The 3800 Model 3 can operate with IBM 4341, 3030 series and 3080 series processors. When operating in the compatibility mode, the unit is supported by IBM's MVS system control program.

The all-points-addressable mode will be supported through future MVS releases and licensed programs, such as the firm's Document Composition Facility.

Corrections

Datapro Research Corp. inadvertently omitted System Support Software's Quickjob package from the grouping of six-year winners in the Oct. 25, Page 1 illustration captioned "Packages That Have Made the Top Rated Group for Five or More Years." The illustration accompanied the article describing Datapro's "User Ratings of Proprietary Software" survey.

In "IBM Info Center Concept 'Hodge-Podge': Exec" [CW, Oct. 18], remarks made by Thomas A. Hannagan, president of Thomas Hannagan & Associates, Inc. of Schaumburg, Ill., at the International Information Management Exposition and Conference held in New York were incorrectly attributed to Richard C. Williams of The Continental Group.

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Everything went in the move, including the documentation (right). The inside of a modem cabinet that looked like spaghetti was untangled after the move (left).

Data Center Move: They Planned for the Worst

By Bill Laberis
CW Staff

PHILADELPHIA — It was moving day for the Reuben H. Donnelley Co.'s computer center here two weeks ago.

Not a long move, mind you, it was a scant seven miles across the Delaware River to suburban Cherry Hill, N.J. It should have been a piece of cake, right?

"Only if you've planned, planned, planned — and then you've got to plan even further for the worst happening," Mike Jones, Donnelley's DP general manager, said. "Plenty can go wrong, and sometimes in a move like this it will."

Take the last time Jones helped a Donnelley data center move. It was in New York a few years ago, and everything was proceeding smoothly until the movers dropped a tape controller and processor. That "system crash" forced the replacement of 732 control boards and strapped the independent Yellow Pages marketer with much more downtime than it had bargained for.

"Maybe that should be Rule No. 1 — 'Be really careful which company you choose to move your equipment,'" Jones suggested two weeks ago as he stood in the middle of an office piled with cardboard boxes.

For this move, Donnelley chose the D. Cristinzio Co. of Philadelphia to move twin IBM 4341 CPUs, 14 disk drives, five tape drives, printers, controllers, terminals and other assorted peripherals, not to mention office furniture, paper files and cartons of computer tape — all for $12,000. Cristinzio had been recommended by IBM, which was paid nearly $30,000 to disassemble the hardware and reassemble it seven miles away in Cherry Hill.

But coordinating the mover's effort was only a small part of the work of Jones and his planning team, which included Gabriel Marcovecchio, data center manager, and Joseph McCurdy, manager of administration and planning. In moving just seven miles, the company crossed the boundary between two different Bell operating companies, New Jersey Bell and Bell of Pennsylvania. And in moving a data center that serves 164 terminals at 20 remote job entry sites, "getting your communications act together is the trickiest part of the move," Marcovecchio noted.

"Essentially, we'll be doing in one shot what took us years of communications work to put together," he added as the IBMers arrived to begin taking the hardware apart. "Years ago it was the hardware you worried about, because a little bump could knock something out of whack. Now the hardware is made a lot better, but the communications hookups are much more complex."

For that reason, the Donnelley planning team also included Eugene McLaughlin, company communications specialist, when moving plans were first drafted a year ago. As in virtually every aspect of the move, the planners built in as much backup as they could to anticipate worst case communications situations.

For example, Donnelley rented a standby IBM 3705 communications processor, preinstalled at the Cherry Hill site, in case its own processor could not be brought up as planned. Rented for one month, the 3705 represented "a $4,000 insurance policy," Jones said.

Skull Sessions

The planning team held several skull sessions with representatives from New Jersey Bell, which was installing all local communications circuitry, and AT&T, which would provide Donnelley's 11 Long Line circuits at the new site. All circuits in Cherry Hill were pretested as much as they could be without Donnelley's hardware actually running on them, McLaughlin noted.

Donnelley carefully chose the Cherry Hill site in order not to inconvenience greatly the 45 workers transferred there. The company can ill afford to lose skilled DPers to commuting problems, Jones said.

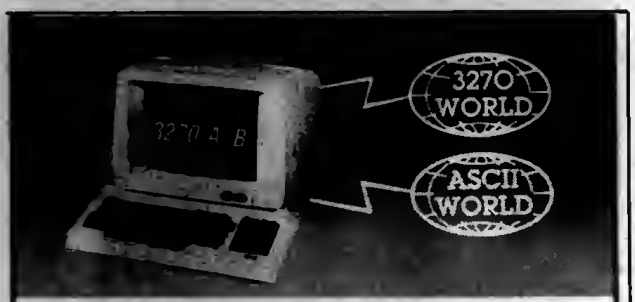
The move, beginning late Thursday afternoon, was supposed to be completed the following Sunday, with all equipment installed, tested and ready for full-service start-up last Monday morning at 8 a.m. How did it actually go?

"Excellent," Jones said Monday afternoon, less than eight hours after the system was brought back on-line.

What They Did To Ensure Smooth Move

PHILADELPHIA — In addition to renting a standby communications processor as a disaster backup, planners at Reuben H. Donnelley Co. took the following steps to ensure that the data center move would be a smooth one:

- Each of the IBM 4341 processors was shipped in a different truck. Insurance against an unforeseen motor vehicle calamity. Had one of the processors been lost, smashed or otherwise rendered unusable, Donnelley would have activated its IBM 2914 switch, which would allow all peripherals supported by one CPU to be migrated to the other on a temporary basis.
- To avoid unnecessary complications in bringing the system back up, operations managers froze all software changes, new applications development and equipment configuration changes for 30 days prior to moving day.
- Donnelley obtained 24-hour standby service from each of the two communications companies involved in the move, IBM and Racal-Milgo Information Systems, Inc. Racal guaranteed it would replace Donnelley's entire modem network in one day should disaster strike the communications system.
- Guiding each step of the move were the large schematic diagrams drafted months ago that showed "where every little plug and jack as well as each piece of hardware was supposed to go once things arrive at Cherry Hill [N.J.]," according to Mike Jones, Donnelley's DP general manager.



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Computer's Presence Poses Problems at Polls

By Susan Blakeney
CW Staff

Lengthy delays and much confusion were reported last week by poll officials in Du Page County, Ill., because of wet computer punch cards and a computer system that was down. In Pinellas County, Fla., software problems were blamed for late election results.

These incidents attest to the ever-increasing presence and importance of the computer at election time.

"Because the election process is becoming increasingly complex, election officials do not have the technical expertise to efficiently manage the system as it should be . . . They're not DP people."

So said Rob Hilliard of Coopers & Lybrand, a consulting and accounting firm that has been involved in the evaluation of the election process in places such as Detroit, Dade County, Fla., and Illinois.

Dave Morrison of the same firm added that software developers should strive to "establish a clean DP flow with better headers, totals" and so on to aid in the ballot tabulation process. He also felt that election officials should establish better and more consistent procedures for handling voting results.

On the role of computers in state and federal elections, Len Gilbert, a principal at Coopers & Lybrand in charge of computer auditing, argued for stronger laws governing the testing of computer election systems.

"I think the laws should be strengthened . . . and this should come from the Federal Election Commission in Washington, D.C.," Gilbert said.

Furthermore, Gilbert argued that "more training is needed of responsible government officials" to protect the electoral process from error and abuse.

Gilbert also recommended that election system software be subject to a third-party, nonpartisan review before it goes to market.

Honeywell to Lay Off 1,850; Year-to-Date Total: 3,000

By Paul Gillin
CW Staff

MINNEAPOLIS — Honeywell, Inc. will lay off approximately 1,850 employees in its Information Systems Division by Dec. 2, bringing to 3,000 the number of employees furloughed this year.

The layoff will primarily affect "staff not directly involved in selling, servicing or manufacturing the product," a spokesman said. However, the company said some reductions will be made in field support functions at branch locations throughout the U.S. The spokesman would not say how the cutbacks will affect field service.

The layoff will affect about 800 employees in Massachusetts, the spokesman said. A reliable source said that figure includes 280 employees in the Small Systems and Peripherals and Office Systems and Terminals Divisions, which make the DPS 6 line of minicomputers and terminals.

The rest of the Massachusetts layoffs will be concentrated in the U.S. Marketing and Services Group, which cut 700 employees from its rolls in January.

In the Phoenix area, where mainframe computers are manufactured, layoffs will hit 450 employees, the spokesman said. Another 115 employees will be laid off in Minneapolis.

The remaining 475 employees are in field support and international operations.

The spokesman said direct production employees in Massachusetts would not be immediately affected by the layoffs, but 125 production employees will be laid off in Phoenix.

Honeywell's Information Systems work force numbers 27,000 worldwide.

Analysts see the reduction as the latest in a series of management actions that the company has undertaken to reorient its direction, which one analyst called "meandering."

In January, Honeywell laid off 1,150 division employees and announced a major reorganization. In September, division President Steven G. Jerritts was demoted and replace by Renier in what the company said was a move "to bring new ideas and technology to the business and to position Information Systems for later decades."

"Honeywell seems ready to go through the same moves as Burroughs went through last year," said Brian Jeffery, director of computer research at Strategic, Inc. in San Jose, Calif.

"Over the last year we have been seeing high staff turnover, stagnant sales and little in the way of product introductions," he said.

Jeffery called prospects for the DPS 88 large-scale computer, which had been announced in October, "questionable."

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N.Y. Bar Subcommittee Rejects Two DP Crime Bills

By Bob Johnson
CW New York Bureau

NEW YORK — The New York State Bar Association's Subcommittee on Computer Law has publicly rejected two computer crime bills pending in the New York State Legislature.

In a report released by the bar association last month, the subcommittee said that the bills, designed to amend the state penal law in regard to computer-related crime, contain "unacceptable provisions."

The report noted that the two bills — S. 8310 and S. 8391 — share language and concepts derived from the federal Computer Systems Protection Act, which has been going through revisions since 1977. However, like most other state computer crime statutes, they do not incorporate the revisions made to the federal bill. The revisions cover such areas as terminology definitions, duplication of existing penal provisions and unduly harsh penalties.

In the area of terminology, the report took issue with the bill's definition of the word "computer."

"The definitions of 'computer networks' end 'computer systems,' identical in both bills, are not precise or universally recognized and introduce other undefined technical-type terms such as 'remote terminals' and 'complex' of interconnected computers," the report said. "We fevor a simpler definition which avoids needless technological lenguage serving only e limited legislative purpose. For example, the language in S. 8391, 'by the manipulation of electronic and magnetic impulses,' could safely be eliminated."

The subcommittee also reviewed five areas of criminal behavior addressed by the bills that it found to be at fault. Areas including computer fraud, computer damage or destruction, stealing software trade secrets, unauthorized computer use and denial of computer services were noted as being dealt with in e less than efficient legal manner.

Another problem spot with the two bills, according to the report, is in the area of unauthorized computer use. The subcommittee pointed out that only one of the bills criminalizes this behavior. Although it is not alweys a serious crime, the subcommittee said, the potential for unauthorized use where the intent is to commit or conceal other crimes is substantial.

Micro-CPU Link Absent

(Continued from Page 1)

called Micro Courier, which runs on the Apple Computer, Inc. Apple III (the predominant microcomputer used et Rockwell). Micro Courier, developed by the Norwood, Mass., firm of Microcom, Inc., "allows us to transmit data and text back and forth between Apples and also to look like a terminal to go into the large-scale mainframes," Smith said.

Micro Courier provides asynchronous communications at 300 bit/sec. For the single application area, Rockwell is using a high-speed modem and the Microcom software to reach epeeds of 1,200 bit/sec on a dial-up line as well as to allow the micro to look like an IBM 3270 terminal.

The other method is what Smith called en "off-the-shelf box" from Protocol Computers, Inc., into which microcomputers can be plugged, using either an RS-232 interface or etandard coaxial cable. "It will handle seven micros plus a cluster printer or eight micros with their own printer," he said, noting that it runs et 9,600 bit/sec, full screen.

All that remains, in terms of desired capabilities at Rockwell, is IBM's 3279 color graphics capability.

Most of the firms contacted by *Computerworld* indicated that they did not want to have to resort to homegrown micro-to-mainframe links. However, Chuck Ferguson, corporate vice-president for North American Philips Corp., described his firm'e work in doing just that.

"We have developed in-house a set of packages to strip down the maxi files to a size that can be brought down to e microprocessor," he said. "If e file has 30 million records, you can't bring it down to 110,000. You really have to decide what in that file you want," he added.

Ferguson said the software his group has developed is solving some, but not all, of the firm's problems. "It needs more development. It is the kind of thing I think you can develop forever," he said, adding, "I fully expect to see the marketplace develop, and when we see a good enough package, we will drop our efforts end buy that package.

"We would like to buy those kind of packages," he admitted. "But we have not yet seen e package that satisfies the need."

What he is looking for, he explained, is software that is initiated et the micro level and is capable of performing against the various kinds of files that are available. "You walk into e computer store and their first indication is that 'we can solve it really quickly,' and, in fact, they can't. They don't even know whet e DOS/VSE file is," he said.

What Ferguson and other managers of mainframe-oriented firms who are shopping for micro-to-mainframe links stressed is, "There is e tremendous business opportunity for someone."

Federal DPer Cleaning Cages for $49,538

(Continued from Page 1)

Day puts in e 40-hour week cleaning animal cages — for $49,538 a year, with a raise due in January.

Day claims his fate is the work of vindictive bureaucrats bent on intimidating anyone who doesn't fit the conservative Republican mold. An HHS spokesman claims Day'e slide from the computer room to the animal house is both Day's own doing and the result of the government's strict adherence to Civil Service regulations.

Just what did happen in the unusual case of Charles Day?

On Sept. 30, 1981, the federal Office of Management and Budget fulfilled e Ronald Reagan campaign promise and abolished the CSA, created during the Johnson administration as the Office of Economic Opportunity. Most of the 950 CSA employees, including Day, were left without jobs.

As e CSA worker with seniority and as e self-proclaimed "outspoken voice on worker rights," Day helped labor ettorneys assemble e class action suit, claiming the government had not followed its own rules in rehiring laid-off workers. A federal court judge agreed with the workers, saying the former CSA workers should be given hiring preference in all vacant HHS jobs, whether or not the jobs were similar to the workers' former positions.

Offered Position

An HHS spokesman who declined to be identified said Day was offered e "computer-related position" last December, e job one pay grade below what he had previously earned. Had he taken the job, Day nonetheless would have still drawn his former pay because of "same-pay" provisions in Civil Service employment rules, according to the spokesman.

Day refused the job, the spokesman said, and further informed the HHS he would refuse any job in e classification below that of his old job, which was in the GS-14 category.

Day charged that the spokesman "is totally all wet." He was never offered any such computer job, and he never told HHS officials he would decline any job classified lower than GS-14, he claimed.

"My main concern was to get one more year of service in so that I could draw my full retirement, something I feel I am entitled to after nearly 30 years of government employment," Day said. "So of course I would have accepted e GS-13 computer job. I would have gotten my old pay enyway and could have put in that last year to qualify for full retirement."

In September, Day received e letter from the HHS, informing him of the availability of the animal caretaker job. The letter maintained that the job represented "the best position we can offer at this time," according to Day.

September Letter

The HHS apokesman said the agency had to offer the job to Day because of what he called an "obscure" Civil Service regulation relating to laid-off federal workers.

However, e researcher et the Federal Research Service of Vienna, Va., which lists government vacancies, said no fewer than 550 "computer jobs" were available during the first two weeks in September. At least 85 of those positions were in the Washington, D.C., aree.

Day accepted the HHS job offer, claiming it was the only position he'd been offered since his iayoff. He received e year's retroactive pay and e salary pegged et what he earned when laid off, plus raises, all in line with government regulations. The animal caretaker's job ordinarily pays about $14,000, not the nearly $50,000 Day now earns.

"They could have put me doing anything in a computer operation, and at ieast then I could have been a valuable resource to other people there," Day said. "Instead they let 29 years of experience go down the drain."

Now that Day is an HHS employee once egain, the department will try to find him e job "more commensurate with his skills," the HHS spokesman said.

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The Fewer DP Laws, the Better, DP Execs Say

By Bob Johnson
CW New York Bureau

The less computer legislation enacted in this country, the better.

That was the prevailing mood of DP executives polled in a recent *Computerworld* telephone survey to find out which industry issues computer professionals feel should become law.

All of the surveyed DPers agreed that limited legislation is best and that government interference in the industry, through laws designed to regulate or prohibit, would only tend to make an already complex business more confusing.

The respondents espoused staunch capitalistic philosophies about the DP business. They stressed that the computer industry should be able to run itself with a minimal amount of regulation, just like any other business.

Marion Mason, vice-president of data processing for the Public Savings Life Insurance Co. of South Carolina, said that DPers by and large are involved in their own world, and the question of computer laws does not often cross their minds. This is the way it should be, he added, because there is not really an abundance of issues within the industry that need legislation.

Government Involvement

"I hope government stays out of it [the computer industry] because they'll only institute limitations and restrictions," Mason commented. He felt, however, that it is likely the government will get involved in the industry. He pointed to the banking industry as a probable place because of its current involvement in DP and electronic funds transfer.

Agreeing with Mason was Harry C. Butcher, DP manager for Avon Products, Inc. in Atlanta. Butcher said the passing of computer laws would bring greater government control, which he opposes.

"In areas such as software licensing and programmer certification, I look to organizations such as the DPMA [Data Processing Management Association]. . . . In areas like computer crime — well, I frankly think it is being made more of a problem than it really is."

Another respondent who agreed that he would rather have the DP organizations take care of regulation was Albert A. Miller, director of information systems for Scovill, Inc. in Connecticut. Miller maintained that these organizations have the industry's best interests at heart and said he has more trust in them because of their expertise.

"The government can go too hard with regulations," was the response of the Denver Water Department's DP planning coordinator, J.C. Kehrer. This DPer concurred with his colleagues, saying that the DP industry is no different from any other industry and should not have an abundance of legislation levied upon it.

Information has not changed — the only thing that is different is how it is accessed, Kehrer said. And no special laws should be drafted especially for the computer industry, he maintained.

A DP manager on the West Coast who wished to remain anonymous said the last thing he wants to see in the industry is tailor-made legislation. He pointed out that the computer business is traditionally entrepreneurial; excessive lawmaking would only make it "fat and lazy" like other big businesses.

Anthony James Malool, director of information systems for Drew Chemical Corp. in New Jersey, was the only respondent ever to hint that he may favor legislation. He said that because his group sometimes creates software that can be considered a competitive asset, program copyright laws might prove beneficial.

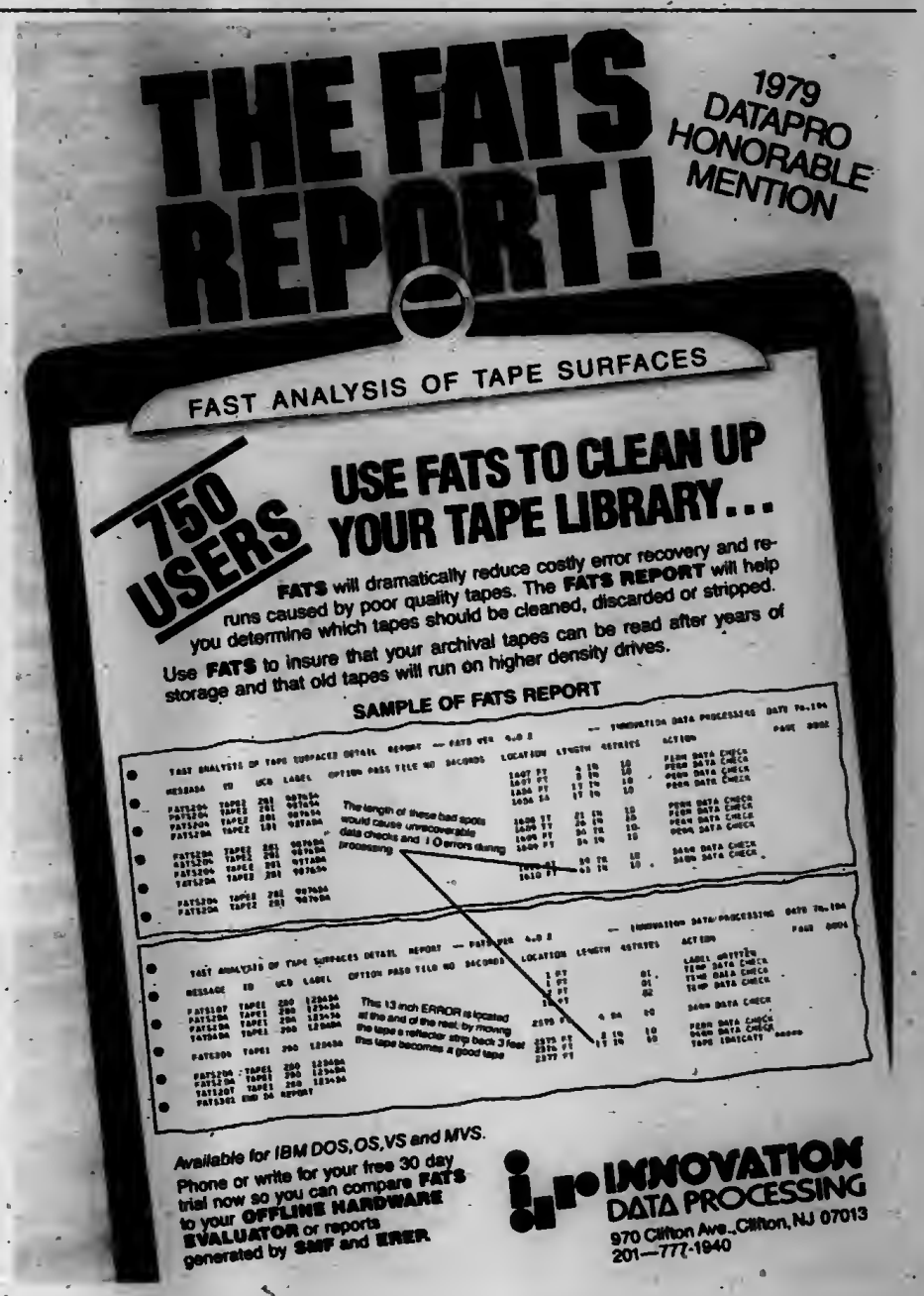
ACLU Criticizes Reagan Policies

WASHINGTON, D.C. — The Reagan administration has led an unprecedented attack on constitutional rights, the American Civil Liberties Union (ACLU) claimed recently when it reported on its efforts to counter such White House initiatives as censorship of scientific publications and promulgation of new government data secrecy regulations.

"In the past two years, the country has confronted an extraordinary array of threats to individual liberty," ACLU President Norman Dorsen said in the preface to "Civil Liberties in Reagan's America," a report on the organization's activities over the last two years.

Unlike other "dangerous periods for civil liberties," such as those "dominated by Joseph McCarthy and Richard Nixon," the ACLU said, "for this administration, the erosion of the Bill of Rights seems to be a primary goal, not a side effect."

The report cited the government's attempt to suppress delivery of scientific papers on nonclassified topics at a recent scholarly convention. This action, the ACLU said, "was the latest and boldest attempt in the administration's campaign to get scientists to submit their work to the government for prepublication review — an astonishing attack on traditional academic freedom."



Hank Stram Sees Computers 'Playing' for NFL

By Bob Johnson
CW New York Bureau

NEW YORK — The next commercial for Lite beer that you see may feature a computer instead of a football player.

Computers have entered the National Football League (NFL) and according to Hank Stram, former head coach of the Kansas City Chiefs, their use in football has just begun.

In an exclusive interview here, Stram, who is now a sports consultant to MDS Qantel, Inc., said he would not be surprised to see an online terminal during games on the sideline of every team in the NFL within the next 10 years.

The former coach said this prediction is not very farfetched. He pointed out that computers are already performing many DP functions for many teams in their offices, and the next natural step is to bring them on the field. "The sideline computer could be operated by a coach/technician whose main responsibility would be to provide instant data for coaches on the field. It could be programmed to diagram and analyze both offensive and defensive plays of both teams. There may even be a terminal in the spotter's box or in the locker room linked with the team's main computer at its headquarters," Stram said.

No stranger to computers, Stram traced his introduction to technology to 1948, when he was on the Purdue University coaching staff. He explained that while attending a coaching clinic at Princeton University, he discovered that a man named John Steigmund was using the school's IBM computers for football scouting purposes. "We borrowed Steigmund to come over to Purdue and install the same software on our system," he said. The coach noted that all the output was then on hard copy and constituted tons of paper. "Now, with everything stored on disk it's a lot more convenient," he said.

Realizing the power of the computer in an analytical and mathematical game like football, Stram revealed that although he knew it was going to be a boon to the sport when he first discovered its potential at Purdue, he did not "push it" because he wanted to keep an edge.

As the industry grew, however, Stram said more and more teams began to use computers and, in 1970, the Kansas City Chiefs became users of a computer services company and a sports package that performed offline, play-by-play analyses. When asked if the computer made any difference in the Chiefs' success and its two Super Bowl victories, Stram replied, "It [the computer] certainly proved valuable in the Super Bowl game against Minnesota by giving us some integral information."

Elaborating on how the computer helped Stram and the Chiefs, the coach offered examples of its application. He said the computer allows a team to scout itself as well as the opposition. He explained that it is an important part of football to be able to know what your team is doing and where your strengths and weaknesses lie. "By using the system, the coach can create an entire game plan, one that is much more organized than ever before," Stram said. "Because the computer will show what plays have been used in every circumstance, you can get a clear picture of what plays and what players need improvement.

"Game analysis information is extremely detailed and gives a competitive edge" he said. "The computer is fed all the offensive and defensive plays of an opponent's last three or four games, then analyzes the information and comes up with the opponent's tendencies in specific situations."

Stram at a Recent DP Conference

PE Unwraps Its Largest Processor

(Continued from Page 1)

cally allocate resources to suit the current work load.

The 3200MPS will continue to operate if one or several APUs cease functioning. Tasks can be reassigned to operating APUs or to the central processor. If the central processor fails, however, the APUs cannot function, the spokesman said.

The 3200MPS was designed with various fail-soft capabilities to ensure system integrity, he added. Both the hardware and software automatically shut down areas of the system if errors or defects are detected.

For example, if errors are detected in one of the disk drives, the system will allow read-only access to memory until the problem is resolved. This, PE claimed, prohibits a damaged disk drive from entering errors into the system.

Another fail-soft capability is a feature that will idle a malfunctioning APU and inform the CPU that there is a problem. This either allows the CPU to reallocate automatically system resources or gives an operator a warning of a system failure that requires a temporary reconfiguration of the system, the vendor said.

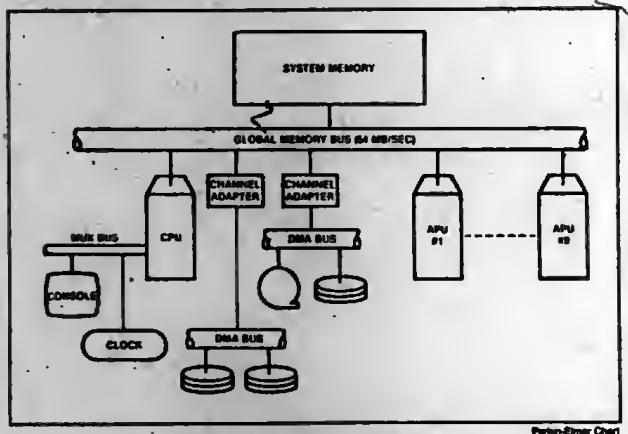
PE's global memory system supports up to 16M bytes of addressable memory, which is accessible by the central processor and all APUs. Memory can be configured with either two-way or four-way interleaving.

The 3200MPS has a peak bandwidth of 64M byte/sec through a 64-bit bus. I/O is supported by a 40M byte/sec bandwidth, the vendor said.

A basic system consisting of a CPU, one APU, 2M bytes of memory and all prerequisites costs $185,000. A 4M-byte configuration costs $199,000 and each additional APU, which comes with a floating-point processor, global memory interface, 4K bytes of cache memory and writable control store, costs $35,000.

A fully configured system with nine APUs and 16M bytes of main memory costs about $500,000.

PE is located at 2 Crescent Place, Oceanport, N.J. 07757.



Perkin-Elmer Chart

The Basic PE 3200MPS Configuration

STC Ultimacc Offers CPUs

(Continued from Page 1)

sec STC 4551 tape drive. Additional 1.27G-byte disk drives can be added to either system.

No file conversions are required when transferring applications, the vendor noted.

STC Ultimacc's USX39 comes with 2M bytes of standard main memory; the USX40 has 4M bytes. Both systems are expandable to 8M bytes, double the capacity of IBM's 4341 Model Groups 9 and 10, the firm said.

According to Kellerman, the USX39 and USX40 have an internal performance of .55 and .62 millions of instructions per second (Mips), respectively. The internal performance of the IBM 4341-9 and 10 have been rated by *Computerworld* at .40 Mips and .58 Mips, respectively, [CW, Oct. 25]; Magnuson's largest M80/30 series processor, the M80/32, has been rated at .56 Mips [CW, Aug. 2].

Both STC Ultimacc processors have a processor cycle time of 100 nsec.

The USX40 supports IBM's SSX/VSE and DOS/VSE operating systems. That processor comes with 16K bytes of buffer memory.

The USX39 suports DOS/VS and VM/370; it has no buffer memory.

IBM's 4341-9 has 2K bytes of buffer storage and the 4341-10 has 4K bytes.

The USX39 costs $167,000 and the USX40 costs $205,000. The systems lease for $5,668/mo and $6,973/mo, respectively, on a five-year plan. Two-, three- and four-year lease plans are also available.

While STC Ultimacc is not offering separate prices for system components, upgrade modules are available for disk and tape drives as well as printers.

The USX processors are available immediately in the metropolitan New York area, Denver and Los Angeles. Kellerman said sales offices are planned for San Francisco, Philadelphia and Boston in two to six months. The units are not for sale through the parent company.

STC Ultimacc is located at 4 North St., Waldwick, N.J. 07463.

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RAXCO Inc. will hold a 2 day seminar on performance analysis and capacity planning for VAX VMS systems to be held December 2nd and 3rd in Toronto, Canada. The first day will cover system data available for tuning under VMS, version 2 and 3. This includes CPU demand, memory access problems, page faulting significance, I/O bottlenecks, and system impact from different user types. Benefits from both monitor and display techniques will be reviewed.

The second day will include VMS case histories, problems and solutions, and hands-on terminal analysis of user-supplied performance data. The diagnostic software will be supplied by both Digital Equipment Corporation and RAXCO Inc.

A fee of $195 covers all manuals, handouts, and user terminal time for both days. Space is on a first-come basis. Payment must be received or verified by November 19, 1982.

FOR MORE INFORMATION, CONTACT:

Jan
APEX Computer Services, Ltd.
201 Consumers Road
Toronto, Canada
TELEPHONE: (416) 498-6665

OR

Lisa
RAXCO Inc.
6520 Powers Ferry Road
Atlanta, George, U.S.A.
TELEPHONE: (404) 955-2553

Traffic Warrant Removed From File

DP Crime-for-Profit Scheme Rocks Texas Court

By Paul Gillin
CW Staff

DALLAS — A computer crime-for-profit scandal in the Dallas Municipal Court here has surfaced after a lawyer for a defendant in a traffic case told a judge that his client had bribed a municipal court employee to remove his warrant from the court files.

Four municipal court employees have been fired and may be indicted for accepting bribes to alter the status of numerous traffic citations and some arrest warrants in the court computer system, a spokesman for the Dallas Police Department said.

Chief Clay Randell, captain of the police department's Intelligence Division, said that the investigatioin has been completed and that findings have been turned over to the Dallas District Attorney's office. He was not willing to speculate on the probability of indictments being handed down against the four former employees.

Randell said 271 of the altered warranta have been re-served and fines of $16,305 collected since the investigation began Sept. 16. But he said the inquiry has not determined how long the violations have been occurring, or how many citations were altered in the computer.

The four former court employees allegedly abused their authorized access to the computerized records and altered them to show that the cases had been dismissed or to indicate that the defendanta had been arrested, according to Frank Breedlove, a municipal court administrator. In each case, Breedlove said, the citations were automatically stricken from the Regional Wanted System, a law enforcement data base that lists arrest warrants for 16 area counties.

The discrepancies came to light in September when a warrant officer noticed that outstanding warrants had been removed from his case file. A computer check spotted the initials of a municipal court supervisor next to the traffic violations that had been dismissed.

A subsequent investigation revealed that the supervisor, who managed the municipal courts warrants division, had been on vacation at the time the alterations were made.

Assistant Chief Harold Warren of the Dallas Police Department said one of the warrants was subsequently re-issued and the defendant arrested. In court, the defendant's lawyer said his client had paid a municipal court employee to have the charges dismissed.

Security has been tightened in the areas of screening and computer security since the violations surfaced, according to Breedlove. He would not specify what additional security measures had been taken.

According to Dr. David Morgan, director of data services for the city, the court records are recorded on twin National Advanced Systems AS/5000 computers, which support approximately 950 terminals and use a three-level security system.

"The terminals are associated only with particular functions, and only those terminals can access records for those functions," Morgan said. "The individual departments are also responsible for password construction. You need two passwords to record court dismissals — one to get in and another to alter the records."

Morgan said password security is the responsibility of individual departments and that no master file of passwords exists. "If somebody steals enough passwords, it could happen again," he said.

Morgan said the city plans to upgrade its computer to an IBM 3081-type system within the next year. At that time, a resource access control facility or similar hierarchical access security system will be employed, he said.

The alleged crime was the first involving the computer system, which the city has been using for five years to support city records including police, fire, courts, water billing, tax, finance, budget and research and library.

Performance Meet Slated for Feb. 28

PHOENIX — Applied Computer Research, Inc. will hold its fourth annual Conference on DP Performance Management Feb. 28 through March 4 in Scottsdale, Ariz.

The conference will focus on the productivity of human and machine resources with primary attention to management. Major topic areas will include DPer-user relationships, communicating with management on performance issues, long-range and capacity planning, problem/change management and performance management issues in communications and distributed processing.

A presentation on quality circles will be given by Dr. Daniel Couger of the University of Colorado.

Registration information is available from Loretta Dryden at Applied Computer Research, through P.O. Box 9280, Phoenix, Ariz. 85068.

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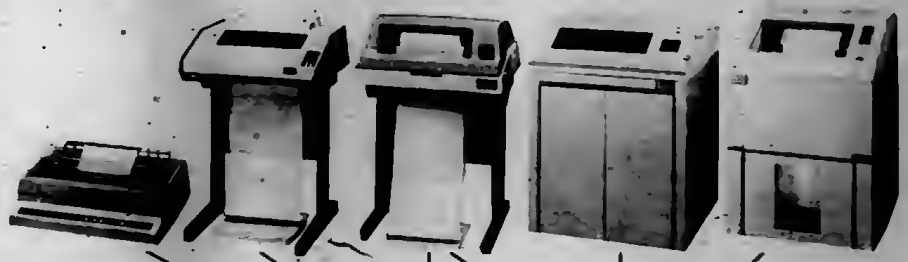

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3274 (type A), 3276	✔	✔	✔	✔			IP1-76
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At a Growing Number of Companies, Part-Time

By Marcia Blumenthal
CW Staff

SAN RAFAEL, Calif. — Working nine to five may be the title of a hit song and subject of an award-winning movie. However, it is not the only way to earn a paycheck — especially in the information processing industry.

Part-time work and job sharing are emerging as career alternatives for an increasing number of professionals in this country.

U.S. Department of Labor statistics show that in the U.S. today there are about 2.2 million professionals who work part time.

Data processing seems to be a natural for part-time work schedules, mainly because it is easiest to find part-time or flexible schedules in professions like programming and systems analysis that have high vacancy rates.

While many employers are resistant to opening the Pandora's box of flexible work schedules, a growing number of forward-thinking companies are using innovative work ar-

Not All Firms Behind the Idea

While Fireman's Fund Insurance Companies is in the vanguard of flexible working schedules for information systems professionals, other firms do not yet see the benefits of such work arrangements.

A case in point is Kaiser Permanent Health Plan in Oakland, Calif., where Billie Failor is a programmer/analyst. Failor started with Kaiser about 10 years ago; she made the switch from a laboratory assistant position to programmer a couple of years ago.

She recently had a child and would like to share her job with a co-worker. Their supervisors had approved the arrangement, but the corporate headquarters nixed the idea, considering it too expensive in terms of fringe benefits. Some health care professionals at Kaiser are working part time, but Failor figures the corporate administration "just didn't want to set policy on job sharing at the time." She is still working on persuading management of the benefits of the arrangement.

Barbara King, a computer specialist with the National Atmospheric and Oceanic Administration, has worked part time for several years. But, she noted, it is difficult to find part-time jobs in government.

The Federal Employees Part-Time Career Employment Act of 1978 opened 30,000 part-time positions, but the program is not very well known, according to King.

Gay Press Forms Group to Study Computer Use

NEW YORK — The Gay Press Association has formed a Telecommunications Information Project (TIP) to assess the use of computers and telecommunications by gay and lesbian groups.

"TIP is a market research effort to see if there is any interest in telecommunications in the gay community," according to organization president Joe DiSabato.

The association is considering the establishment of a data base of members to combat the techniques used by the Moral Majority and other right-wing groups. "Let's face it, the New Right made its mark by using computer lists it has on-line," DiSabato said. "They use it mostly for sending scare letters."

As an example of how the Moral Majoity uses its data base, DiSabato cited a sexual reform act that would update laws on rape, sodomy and other sexual issues for Washington, D.C. "[Jerry] Falwell held a press conference and talked about how this bill was going to make Washington, D.C., the gay capital of the nation," DiSabato said.

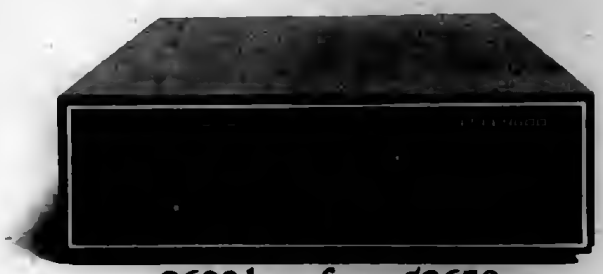
A letter campaign by Falwell caused the bill to be vetoed within three weeks, according to DiSabato. "They can send a half-million letters in a 48-hour period," he said.

The Gay Press Association, made up of 50 publications and some 150 individuals, now uses a Radio Shack TRS-80 III microcomputer with 10M bytes of hard disk storage to provide participating papers with stories on gay issues.

Communications take place over dial-up phone lines, creating the basis for a gay wire service. "We're in the process of hooking up all the gay papers on a micro," DiSabato maintained.

The Gay Press Association is a trade association for the gay media and for gays in the media. More information is available from the association through P.O. Box A, Old Chelsea Station, New York, N.Y. 10011.

INTRODUCING MODEMS AT LOW



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Jobs and Job Sharing offering DP Career Options

rangements as a recruiting tool.

One of these companies is Fireman's Fund Insurance Companies of San Rafael, which in the past year launched a recruiting campaign stating "we want to share a job with you."

Flexible Recruiting Practices

To date, the firm has 12 information system professionals sharing six jobs, according to Patti Hoffman, the company's personnel director. Right now, job sharing is limited to employees working in data processing.

"We wanted to tap a labor market of people who didn't want to work full time," she said. The firm views these job sharers not as part-time workers, but as "long-term professionals," Hoffman said, adding that she is increasingly being consulted by other firms about Fireman's flexible employment practices.

"When you do recruiting you look for the ideal candidate, but with job sharing you can look for people who have different but complementary skills," according to Hoffman. One programmer/analyst may prefer coding while his job-share partner may prefer the design aspects of the job.

Cost-Savings Advantages

Although some employers see flexible hours as costly, Hoffman said the arrangement often provides a cost savings in terms of reduced absenteeism, among other advantages. These employees are paid hourly, but receive full benefits.

Michael Ransom started sharing a programming job at Fireman's last March. Ransom had previously worked at Bank of America in San Francisco for 10 years, rising to the position of vice-president of computer services.

By the time he was in his early thirties "I had done the executive route," he said.

An avid musician, Ransom left Bank of America in 1979 to start his own recording studio, but because of the recession he had to augment this business by teaching DP at a local junior college. While teaching he rediscovered "how much fun programming was."

Right now Ransom divides his time between his programming job, teaching, music and sailing.

Cathy Chinn, a team leader for a project at Fireman's, is working three-quarters time, but not sharing a job.

"I'm basically doing a full-time job, but I'm willing to take a pay cut for the free time," she said. Her free time allows her to spend more time with her two children.

Although it is usually not feasible for part-timers to occupy management positions, Chinn considers herself fortunate to be able to be team leader on a part-time basis working on a project developing an interface for a payroll/personnel system.

Organizations Promoting Alternatives

The growing interest in alternative work arrangements is manifested by several organizations working to promote such employment practices. Some of the better known organizations:

• *New Ways to Work, 149 9th St., San Francisco, Calif. 94103.*

Founded in 1974, this group is an advocate of job sharing. The group takes a multipronged approach, working to educate employers on the benefits of such arrangements and working with individuals to match them up with job sharing partners, noted Linda Marks, manager of the group's client program.

The group is funded by corporations, private donations and sales of publications.

Marks asked that all requests for information be accompanied by a stamped self-addressed envelope.

• *The Association of Part Time Professionals, P.O. Box 3419, Alexandria, Va. 22302.*

This group is a membership organization for part-time professionals in all careers. Established 3½ years ago, the group is now in the process of establishing chapters in other parts of the country, according to Dr. Diane Rothberg, the association's president.

The organization puts out a monthly newsletter and is oriented toward networking for part-time professionals. It has about 700 members in the Washington, D.C., area.

On Nov. 13, the group is sponsoring a workshop on new employment practices for computer professionals at the Sherry Towers Hotel in Washington, D.C.

• *The National Council for Alternative Work Patterns, Room 308, 1923 K St. N.W., Washington, D.C. 20006.*

This group is oriented toward employers educating employers about alternative work arrangements, noted Gail Rosenberg, the group's president. The organization serves as a clearinghouse for information and puts out its own publications.

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IBM Exec Disputes Claims Extended Architecture Not 'Precious' Resource

By Jeffry Beeler
CW West Coast Bureau

PALM SPRINGS, Calif. — An IBM official last week disputed recent claims that IBM's Extended Architecture, one of the main targets of an alleged Japanese attempt to steal the company's product information, is of little special technological value.

Extended Architecture ranks among the industry giant's most "precious" assets and the firm "will go to the ends of the earth" to punish any competitor who tries to steal that resource, according to IBM Vice-President Richard Williams.

The warning — which came during a conference sponsored by Enterprise Information Systems, Inc. — was an apparent reference to the IBM-Japanese industrial espionage case, which Williams never mentioned directly.

Williams' characterization of Extended Architecture as a highly sensitive IBM technology contrasted sharply with recent public statements from defense attorneys representing Hitachi Ltd., one of the case's two corporate defendants. Ever since the case broke last June, Hitachi and its lawyers have sought to portray Extended Architecture as a technology that cannot justifiably be classified as a trade secret. Details of the IBM large-systems enhancement have already found their way into the public domain, they have argued.

But Williams challenged the defense's contention. If any companies other than IBM have gained access to Extended Architecture's details, they have done so illegally, he said.

Williams, who works in IBM's Data Systems Division, contested the idea that Extended Architecture's main purpose is to make life difficult for manufacturers of plug-compatible mainframes.

"We didn't develop XA to bedevil the competition, but to cut costs and break the current bottlenecks in large-systems performance," he said. "Our development costs were so high that we couldn't afford to announce it for any other reason."

Probably the most serious constraint on large-scale systems throughput is today's severe limitations in virtual storage capacity, Williams said. To illustrate his point, he cited a large West Coast IBM user that has dedicated 23 systems programmers to the full-time task of managing the company's virtual storage.

Williams described Extended Architecture as an evolving technology that is still in the very early stages of its development. In the future, users can expect IBM to announce many follow-on Extended Architecture releases, he said.

Because MVS/SP, one of the industry giant's flagship operating systems, has already reached the limits of its performance, future improvements in IBM's product functions and capabilities will have to come from Extended Architecture, Williams added.

In other comments, the IBM vice-president reaffirmed his company's intention to continue standing behind the VM operating system.

Justice Department Appeals Dismissal of 'Sting' Indictments

SAN FRANCISCO — The U.S. Justice Department has appealed a federal judge's order dismissing an indictment that charged three individuals with passing allegedly secret IBM documents to Japan.

The three were indicted in June as part of a "sting" operated by the Federal Bureau of Investigation that resulted in charges being leveled against Hitachi Ltd, Mitsubishi Electric Corp. and 18 individuals for conspiring to transport stolen IBM documents to Japan.

In late September, federal Judge Robert P. Aguilar threw out the indictments against Tabassom Ayazi, Raymond Cadet and Barry Saffaie on the grounds that the government had not turned over court-ordered documents to the defendants [CW, Oct. 4]. Attorneys for two of the defendants said they had expected the appeal.

Seminar Guide Released for DPers

NEW YORK — Seminar Information Service has released a seminar reference guide for the data processing field.

The *SIS Workbook — EDP Edition* lists nearly 500 seminars and courses for data processing professionals. The book includes an alphabetical listing of all course sponsors and a calendar section covering dates and sites through March 1983. Periodic updates will be available.

The workbook costs $49.50 and a calendar update through October 1983 will be available next March for $10, a spokeswoman said from Suite 3141, 175 Fifth Ave., New York, N.Y. 10010.

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Cheaper IBM Personal Computer Predicted

By Jeffry Beeler
CW West Coast Bureau

PALM SPRINGS, Calif. — IBM is likely soon to complement its Personal Computer with a second such model priced at less than $1,000, according to First Boston Corp. Vice-President Harry Edelson.

Speaking here last week at Enterprise Information Systems, Inc.'s annual fall forum, Edelson also predicted an imminent entry into the minicomputer field by AT&T. By as early as next January the communications giant may mark its debut as a computer supplier with the introduction of a mini-based system comparable to Digital Equipment Corp.'s VAX-11, the market analyst said.

"AT&T is going to stomp around and make its presence felt in a lot of businesses," including a few now populated by its long-time customers, Edelson warned.

Low-End Competition

Unlike the predicted AT&T minicomputer, IBM's second contribution to the personal computer field is likely to compete with offerings from low-end systems vendors such as Altos Computer Systems, Inc. and Convergent Technologies, Inc., Edelson projected. In addition to costing several times less than the current system, the second IBM Personal Computer stands a good chance of becoming "the 3270" of its product class, Edelson said.

The system, which will possibly be announced as early as this month, is expected to operate in data communications networks by being able to interconnect with IBM host processors and the Model 8100.

As the very low end of the systems spectrum gradually matures, Edelson said, personal computers will merge with the rapidly expanding personal workstation field and will cease to exist as a discrete product category. "Personal workstations are definitely where the action is today," and any vendor that has thus far overlooked that simple fact "had better get its act together in a hurry," he advised.

Within the next two years, IBM will probably overtake its competitors in the very low-end systems sector and will establish itself as the industry's dominant supplier of personal computers, he added. The company has already delivered nearly 175,000 units of its Personal Computer, and the shipment volume is expected to double by the end of next year.

Today, IBM still shares the personal computer arena with a multitude of smaller, less widely known competitors. But within the next few years, the field will likely succumb to a shakeout that will force all but the strongest of IBM's rivals to fall by the wayside, Edelson forecast.

Survivors of the coming industry shoot-out will almost certainly include Apple Computer, Inc. and Commodore Business Systems, Inc., he predicted. But most of the other players in today's crowded field of personal computer suppliers will either go out of business or allow themselves to be acquired.

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OA Said Key For Mainframers

PALM SPRINGS, Calif. — A presence in the rapidly emerging office automation field has become indispensable to the survival of IBM and the other traditional mainframe vendors, the president of Integrated Technologies, Inc. maintained last week.

"Any mainframe supplier that has failed to get involved in office automation is not going to stay in business very long because there's no real difference [between traditional DP and the OA field]," Dr. Michael Zisman said here at Enterprise Information Systems, Inc.'s annual fall forum.

Challenging the prevailing perception that office systems and DP are fundamentally different from each other, Zisman said the truth of the matter is that the former has evolved naturally from the latter and that OA is little more than conventional DP in an updated setting.

One of the main obstacles to OA's widespread acceptance is that the installation of office systems often turns into a power struggle among three rival organizations — management information systems (MIS) management, office administration and communications management. With some justification, each of the three sides regards OA implementation projects as its exclusive sphere of concern.

Zisman's own opinion is that responsibility for OA management rightfully rests in the hands of a company's central computing department, and he voiced confidence that the ongoing battle for installation control will ultimately be won by DPers.

In other comments, Zisman rejected the popular DP belief that conventional, mainframe-oriented systems solutions can satisfy any end-user need just as effectively as a personal computer. A computing department that uses on-line IBM 3270 terminals to remedy relatively trivial user problems is engaging in the DP equivalent of "using an elephant gun to kill fleas," he said.

UN Assembling WP Harmony After Tough Start

By Jim Bartimo
CW Staff

BOSTON — God and countries are two areas where office systems are lending support, according to T. Allan Trick of The First Church of Christ, Scientist here and Carole Thompson of the United Nations. The two office automation executives profiled their word processing setups at separate sessions here last week at The 1982 International Conference of Wang Users.

At the Mother Church of the Christian Science Church, planning and training led to a smooth entrance into the automated office (story below). But nearly every crisis that can befall a budding automated office occurred at the UN, adding to the complex language problems already in existence.

Thompson learned from her experiences that supervisors should be trained first, that workstations should be installed first, that a separate training facility is necessary and that training should be ongoing. And managers should not expect productivity to increase immediately, Thompson said, but rather they should give users time to become proficient.

Thompson came from the UN's data processing department in 1977 to automate the multilingual typing pools, but did not actually begin until a two-year labor dispute over automation was settled. When the dispute finally ended, the Wang Laboratories, Inc. equipment arrived before the ergonomic furniture that was required by the labor settlement.

Further delays cut into training time and construction of a new office layout took place while typists were learning, Thompson said.

But the labor dispute led to staff involvement in the implementation. "Having the staff design the room made a big difference in the acceptance of change," Thompson said. The typing pool was once an eyesore, but secretaries have improved the office and are "house proud," with the terminals completely separate from the CPU and printers.

"Because the staff still fears there is radiation, we test the equipment frequently," Thompson said. "There is yet to be a positive reading. There is a capacity for eyestrain, so an ophthalmologist comes once a month."

The tens of thousands of documents produced by the UN each year are in six languages — English, Spanish, French, Chinese, Russian and Arabic. "By 1981, we had all of the Spanish and half of the English pools finished," Thompson said. "By the end of 1982, the French and English pools will be done.

"In 1977, there was very little on the market for three languages on one keyboard, but Wang came through for us by the end of 1977," Thompson said. Calling Russian, French and other alphabet-based languages easiest to implement, Thompson said she sees the most difficult problems with Arabic, which reads from right to left. "We are an Arabic test site for Wang," she said.

Mother Church Installs WP Net

BOSTON — Because a study showed that a centralized word processing system was not possible, The First Church of Christ, Scientist here has spent the past year installing eight Wang Laboratories, Inc. OIS 140 systems in a distributed and networked design.

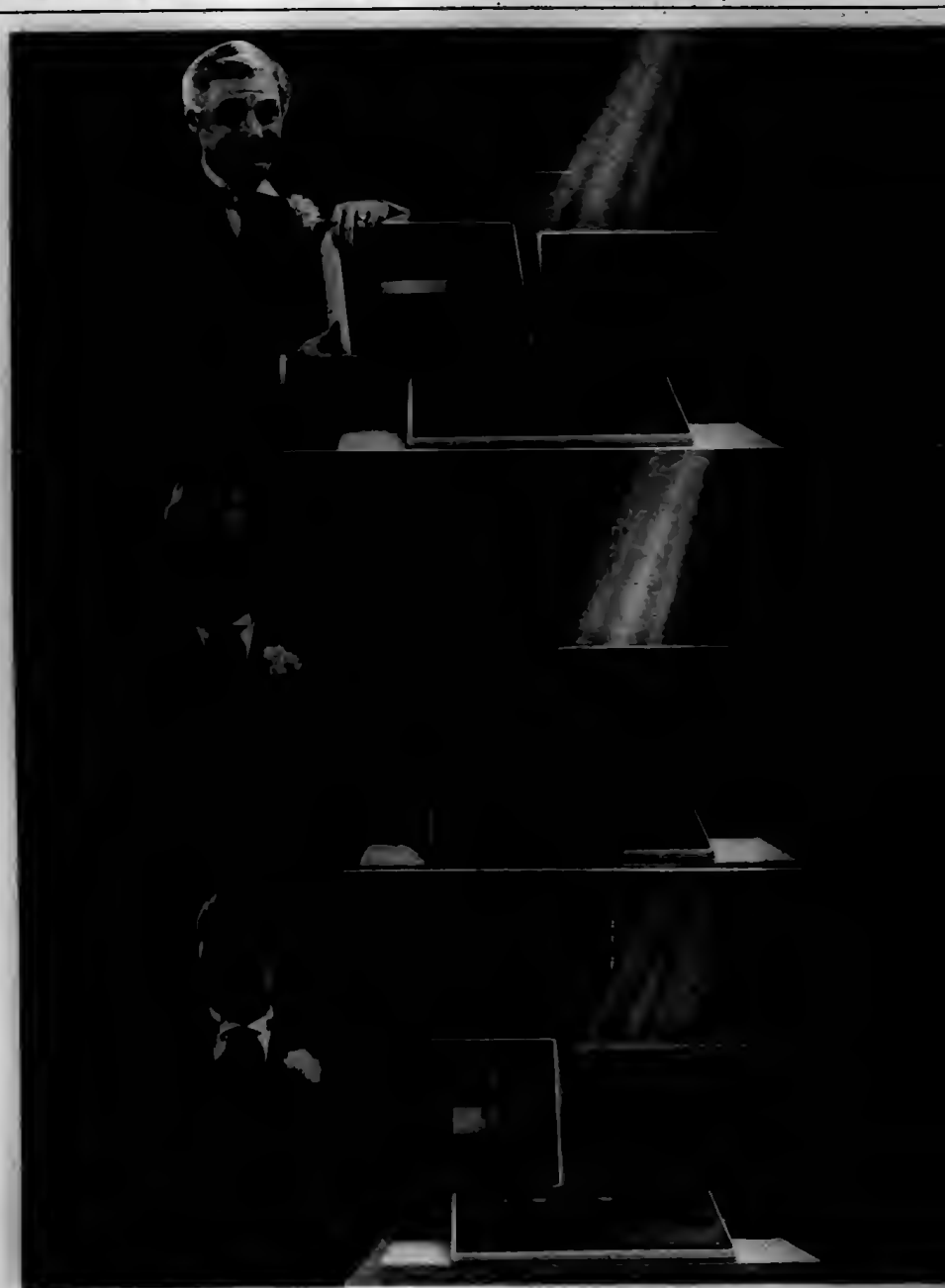
Before the Christian Science Church headquarters chose Wang, it narrowed its original list of 15 office system vendors to five: IBM, Wang, Digital Equipment Corp., Xerox Corp. and Prime Computer, Inc. "We knew our system's success would depend on what kind of support we got from the vendor," the church's office automation executive, T. Allan Trick, said here last week at The 1982 International Conference of Wang Users.

The Wang system was chosen to bring both word processing to secretaries and some decision support to managers.

The Mother Church employs 1,850 people and produces copy to keep its many members informed as well as for other administrative needs. Its most recognized publication, *The Christian Science Monitor*, uses a separate text processing system from Atex, Inc.

Training on the OA system starts with the supervisors, who are sent to the Wang supervisors' training course. Other office workers are trained in-house by the supervisors.

'We knew our system's success would depend on what kind of support we got from the vendor,' T. Allan Trick recalled.



OA Called Business — Not Tech — Enterprise

CW Photo by J. Bartimo

'Managers are not drill press operators — productivity is a meaoingless coocept to a manager,' MIT's Michael Hammer told a group of Wang users last week.

By Jim Bartimo
CW Staff

BOSTON — Calling office automation a business enterprise rather than a technological enterprise, Michael Hammer said last week that "too much of office automation focuses on what is least important. Conventional office automation gets all excited about the trivial."

According to Hammer, who is with the MIT Laboratory for Computer Science and with Hammer and Co., office automation should be a catalyst for the refocusing of office work and should have a strategic impact on business. Instead, too much emphasis is placed on the technology, he said at the 1982 International Conference of Wang Users here.

"Why start with the answer?" Hammer asked. "Start with the problem. Office automation is not the objective. The objective is doing the business better. If I can use office automation — terrific. If I can't — that's terrific, too."

One mistake many organizations make is applying the wrong measurement of productivity to the office. "The vendors have the gall to look you in the eye and say your productivity has changed," Hammer said. "If you've improved your productivity, I want to know how you measure it.

"Productivity assumes the ability to measure output. The office does not have output of intrinsic economic value. Managers are not drill press operators — productivity is a meaningless concept to a manager."

What is meaningful to managers is whether the business runs better and if there is increased profit because of OA techology.

"Let's try a more general approach. Every office is unique and distinct," Hammer said, and, therefore, needs its own standards for productivity.

Another overlooked factor in OA is the human factor. "People are the most important part of the system," Hammer said. "Don't tell them to like automation for the good of the company. They're asking, 'What's in it for me, Jack?' "

Members of the department that implements OA should act as consultants, experts and teachers to users, Hammer suggested. This requires technical skills, business skills and people skills.

"No group — not the data processing department, the office automation department or the administration department — is ready now, but the job of implementation will go to the most aggressive group," Hammer said.

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Group Seeks Wang VS Users

COS COB, Conn. — The call is out for users of Wang Laboratories, Inc.'s VS processors who are interested in forming a nationwide users group that would be independent of the existing International Society of Wang Users.

Harry J. Berkley, vice-president of Berkley Holdings Corp. here, wants to set up "an independent forum through which users and vendors [and even Wang itself] can share ideas and information."

As Berkley explained it, the group would put out a monthly or semi-monthly newsletter with paid advertising by hardware and software vendors and by users interested in buying software or used hardware. He also hopes to obtain contributed articles from various sites, particularly those beta testing Wang products and from long-time users of Wang equipment.

"Since this is not a funded project by any organization, I may have to charge a minimum fee [possibly $5 to $10 per year] to cover postage and printing costs," he said. "If there is enough interest in advertising, I would rather mail the newsletter to qualified users for free."

Another part of the overall plan for the users group would be to arrange for a volume discount to members on supplies such as disks, floppies, printer and word processing ribbons. Berkley said several vendors have expressed interest in a package deal.

Berkley hopes to establish the newsletter shortly after the beginning of 1983 if, he said, he can get the names of enough VS users to make the project a success.

Wang VS users interested in obtaining more information about the group can contact Berkley at Berkley Holdings Corp., 99 River Road, Cos Cob, Conn. 06807.

IEEE Nearing Release of CSMA/CD Standards

By Jim Bartimo
CW Staff

BOSTON — The Institute of Electrical and Electronics Engineers' 802 Committee will release standards for token bus and carrier-sense multiple access with collision detection (CSMA/CD) architectures for local-area networks as early as January 1983, according to committee Chairman Maris Graube. And the IBM-endorsed token ring architecture standard will be sent to committee for approval in the spring, he told attendees at the Network Users Association (NUA) Fall Symposium here.

"We're basically done," Graube said. "It's been a rough couple of years, but the standards are here."

Standards for token bus and CSMA/CD local-area networks are completed and will be sent to approval committees this month or in December. "There is still a long approval process to go through," Graube said, which includes legal experts, vendors and the NUA itself. "But the real voting comes with user dollars," he said.

"Everyone has a different idea of what a local-area network is," Grsube noted. "There are hundreds and thousands of ways to set up a local-area network and the problem is: They all work."

But each approach can be used for a specific application. For instance, CSMA/CD architectures such as Xerox Corp.'s Ethernet can be used to tie together personal computers and other small systems; token bus architecture can be used to tie systems together in a large building or industrial park; and token ring can be used to configure IBM systems. "Each one has a place," Graube said. "We've come up not with one standard, but with a family of standards."

"Compatibility is the only way vendors will survive — never mind users," said NUA attendee Clem Jones, divisional director of networks systems for the British computer company, International Computers Ltd. "Vendors haven't liked being locked into de facto standards set by other vendors."

The 802 Committee has also started work on a standard for metropolitan-area networks which use cable television lines for data transmission, Graube said.

GTE Telenet Asks Appeals Court To Review FCC Rejection of BPSS

WASHINGTON, D.C. — GTE Telenet Communications Corp. recently asked the U.S. Appeals Court here to review a recent Federal Communications Commission (FCC) decision that rejected the Bell Packet Switched Service (BPSS) tariff.

The proposed service would provide the underlying transmission network for AT&T's Advanced Information Service/Net 1000 (AIS 1000), the first of what is likely to be a family of enhanced on-line information services.

GTE Telenet agreed with the FCC's verdict but not with the commission's reasoning.

The tariff was rejected last July because the phone company had failed to file a Section 214 authorization application and also because the service, as proposed, appeared to be usable only by American Bell, Inc., the recently formed separate AT&T subsidiary that will offer AIS 1000.

Since July, AT&T has told the commission that it will file the Section 214 application and will allow sharing of BPSS switches, thus widening the service's potential market.

GTE Telenet, however, along with other carriers, contended that BPSS, as presently structured, is an "enhanced" service because it includes limited protocol conversion on an end-to-end basis.

Under the commission's Second Computer Inquiry Decision, such services cannot be provided by any part of the AT&T organization that also offers "basic" service. The company's Long Lines Division, which plans to provide BPSS, also provides basic intercity private line services.

AT&T's Answer

AT&T's answer is that the changes in question are not protocol conversion: Bits enter the BPSS network and leave it in X.25 format, and thus the service obeys the Computer Inquiry Decision's requirements.

In July, the commission appeared to agree with AT&T. It pointed out that "there is no question Computer II permits AT&T to offer a packet-switching service such as BPSS in the network as a basic service."

Rep. James Broyhill (R-N.C.), a member of the House of Representatives Telecommunications Subcommittee, has persuaded the President's Task Force on Regulatory Relief to investigate the FCC decision.

Broyhill, along with other members of both the House and Senate, together with AT&T, insisted that since Section 214 applications are required only when new circuits are contemplated, and BPSS involves only a switching service, the FCC's ruling should be reversed.

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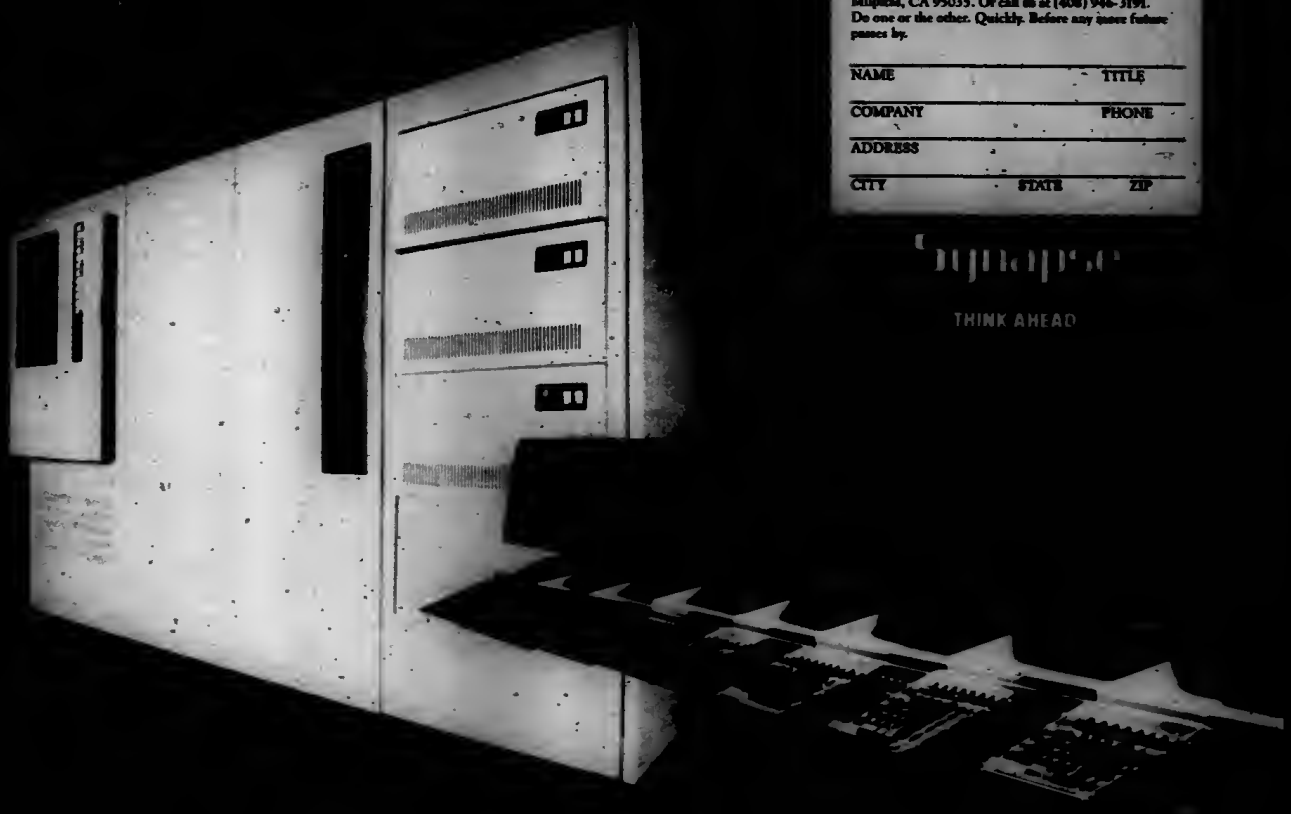

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THINK AHEAD

Philip A. Shontz

Benjamin T. Kutner

Managers on the Move

PHILIP A. SHONTZ has been named DP manager of Peat, Marwick, Mitchell & Co.'s Management Consulting Department in St. Louis.

Shontz formerly was manager of corporate DP audits for Brunswick Corp., responsible for establishing an internal consulting group to audit the company's worldwide data centers. He previously spent nine years as a DP consultant in Chicago.

He earned a B.S. degree at the University of Kansas in Lawrence and an M.B.A. at Indiana University.

•••

BENJAMIN T. KUTNER has joined Virginia Textiles, Inc. as vice-president of finance and director of management information systems (MIS). His responsibilities include implementing both an automated accounting system and a network of CRT terminals and printers for word processing and electronic mail.

Kutner also is responsible for long-range planning, including hardware acquisition and implementation of a point-of-sale system for the retail division, and coordination of personal computer selection.

Prior to joining Virginia Textiles, he was vice-president of Automated Business Solutions, Inc., where he was responsible for a communications network.

He received a B.S. degree in mathematics from the University of Richmond.

•••

GERI PLOCKELMAN has been selected data processing manager of Eesco, Inc., a subsidiary of Estronics, Inc., based in Chicago, which distributes electrical products.

Plockelman previously served as DP manager of Englewood Electrical Supply Co., an Eesco subsidiary. She also has served as DP manager for Service Coatings, Inc. in Harvey, Ill.

Plockelman received a technical degree in computer science from the Training Systems Institute of Indiana.

•••

THOMAS BENNETT has been promoted to manager of information systems development for the Minerals and Chemicals Division of Engelhard Corp., a manufacturer and marketer of performance products and specialty chemicals, headquartered in Menlo Park, Calif. In this position, he assumes responsibility for all aspects of the division's information systems, including planning, analysis, design, programming, staffing and training.

Previously, Bennett was manager of on-line systems development for the Minerals and Chemicals Division of Engelhard.

Bennett earned a B.S. degree in accounting from Rutgers University.

•••

PAUL M. INGEVALDSON has been promoted to director of data processing at Ace Hardware Corp. in Oak Brook, Ill., where he will be responsible for all data processing functions. Formerly, he was data processing manager, a position he held since joining Ace in 1979.

Prior to joining Ace, Ingevaldson was associated with Sears, Roebuck and Co. He held several positions there including programmer, systems analyst, senior systems analyst and, most recently, systems manager of the Merchandise Reporting Group.

Ingevaldson earned both a B.S. degree in business and an M.B.A. degree at Loyola University of Chicago.

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Cook Awarded Turing Prize For Theory On Complexity

CW Photo by M. Zientara

Stephen Arthur Cook

DALLAS — The A.M. Turing Award was presented to Stephen Arthur Cook of the University of Toronto at the Association for Computing Machinery's (ACM) annual conference here recently. Cook received the award for his contributions to the Theory of Computational Complexity, including the concept of nondeterministic, polynomial-time completeness.

Considered the "Nobel Prize of computing," the award is presented to an individual for his contributions of a technical nature to the computing community. Contributions should be of lasting and major importance to the computer field. Named after the English mathematician who made many early contributions to the computer field, the Turing Award has been presented since 1966.

Cook received his B.S. degree in mathematics from the University of Michigan and his M.S. and Ph.D. degrees in mathematics from Harvard University. Widely published, Cook has served the ACM as an associate editor of the *ACM Journal* and as vice-chairman of the Special Interest Group in Automata and Computability Theory. He has been at the University of Toronto since 1970.

Reid Presented Hopper Award For Scribe

DALLAS — Dr. Brian K. Reid, creator of a text processing and document production system that is currently in use by more than 100 European and U.S. firms, was presented the Grace Murray Hopper Award by the Association for Computing Machinery (ACM).

Presented at the ACM annual conference here recently, the award is given out in recognition of major computing achievements made by individuals who are under 30 years of age.

Past winners of the Hopper Award have included Daniel S. Bricklin for Visicorp's Visicalc, Robert M. Metcalfe for Xerox Corp.'s Ethernet and Stephen Wozniak for the Apple Computer, Inc. Apple computer.

In presenting the award, ACM President David Brandin cited Reid for his work in developing Scribe, a computer-based text production and typesetting system.

Scribe was conceived and implemented while Reid was a graduate student at Carnegie-Mellon University in Pittsburgh, Pa. Designed to be a powerful but easy-to-use formatting system, it lets inexperienced users produce final, camera-ready documents. The system is marketed by Unilogic, Ltd.

Named for Dr. Grace Murray Hopper, a computer pioneer, the Hopper Award has been given annually since 1971 by ACM. It includes a cash award donated by Sperry Univac.

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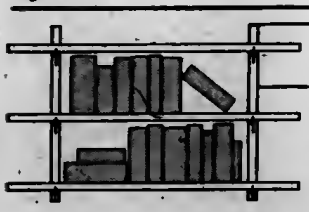


Off the Press

INFORMATION SYSTEMS IN THE 80s: Products, Markets and Vendors
By Ulric Weil

This book is carefully researched, thoughtfully written and packed with valuable information. The author, a principal at Morgan, Stanley & Co., offers a perspective on information services which will interest DP professionals, users and vendors alike. Weil covers packaged software, computer services, office automation, IBM and non-IBM mainframers, as well as other topics, in a no-nonsense manner. Chapters begin with a capsule summary ("IBM compatibility is not just a firmly established concept — it is a market reality but not really an investment success."), followed by a careful analysis of salient points of interest that do not belabor the obvious.

Of special interest is the in-depth case study in each chapter, covering the likes of Cullinane Database Systems, Inc., Tymshare, Inc., Computervision Corp., Prime Computer, Inc., Apple Computer, Inc. and others. This is one of the most interesting books of the year.

Hardcover, 383 pages, $29.95, ISBN 0-13-464560-X. Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632.

ADVANCES IN COMPUTER ARCHITECTURE, Second Edition
By Glenford J. Myers

Myers presents an examination of computer architecture — which he defines as the interface between hardware and software — as it has evolved from the original von Neumann tenets. Part I covers the rationale for architectural advances, including the requisites for improved architectures: self-defining data, capacity-based addressing, process management, instruction forms and others.

Each subsequent part of the book covers a specific architectural category in detail, with examples or cases describing it; they include "A High-Level Language Architecture" and the Symbol System, "A Software-Oriented Architecture" and IBM's Sward computer, and "An Object-Oriented Microprocessor," which discusses Intel's iAPX432, to name just a few. The book is not overly technical.

Hardcover, 545 pages, $47.50, ISBN 0-471-07878-6. John Wiley & Sons, 605 Third Ave., New York, N.Y. 10158.

CORPORATE CULTURES: The Rites and Rituals of Corporate Life
By Terence A. Deal
And Allan A. Kennedy

With 50 businesses a day going under, what are the keys to a company's survival and success? This book attempts to answer that question. The authors conclude that hard-core business thinking and the financial bottom line are not keys, but that "the inner values, rites, rituals and heroes" have a great deal of impact. Companies like IBM, General Electric Co., NCR Corp., Proctor & Gamble Co. and 3M Corp. became successful because they understood that people make companies great; the authors contend many firms have lost touch with that notion. They examine types of cultures, ranging

Seed User Meet Set Nov. 15-17

SAN DIEGO — Users of International Data Base Systems Inc.'s (IDBS) Seed data base management system (DBMS) will hold their biennial meeting here Nov. 15-17. This is the first meeting of the Grange users group to be held since the acquisition of IDBS by United Telecom Computer Group.

Grange members will present papers that deseribe their applications of the Seed DBMS as well as data bases in general. They will also select new Grange officers at this meeting.

Registration costs $100. Further details on the upcoming event can be obtained from IDBS/United Telecom, 2300 Walnut St., Philadelphia, Pa. 19103.

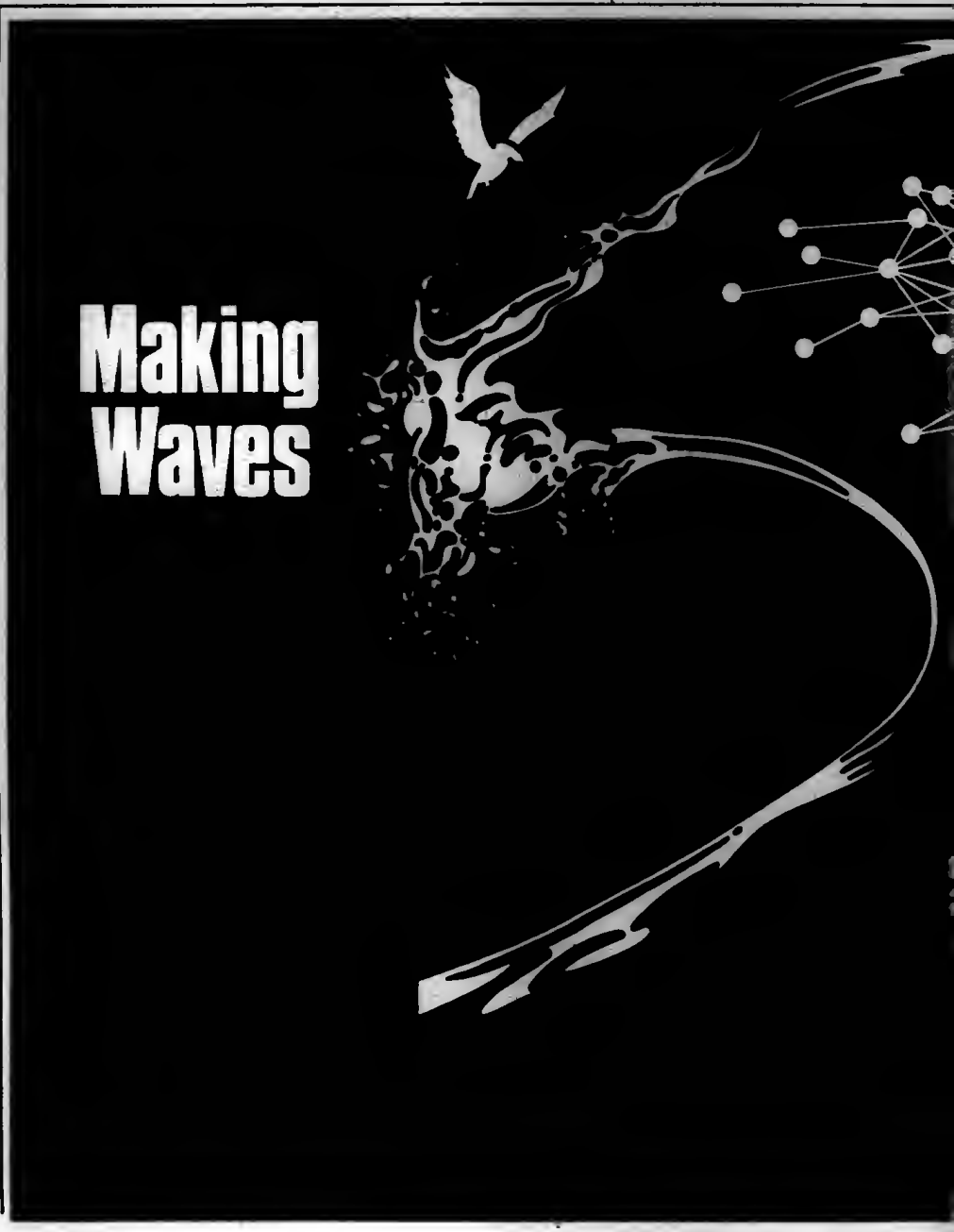
Auerbach Announces On-Line Newsletters

PENNSAUKEN, N.J. — Two weekly, on-line electronic newsletters have been announced by Auerbach Publishers, Inc.

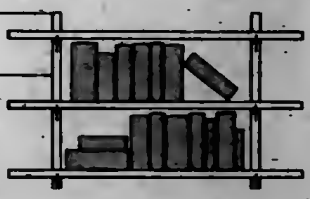
"Mini/Micro Bulletin" reportedly provides news of the mini- and microcomputer markets including systems, peripherals and software news from major vendors.

"Computer Market Observer" is said to report late marketing, financial and personnel developments in the computer industry. The newsletter reportedly also covers contract awards, joint agreements, mergers and acquisitions and earnings reports.

The services are available to anyone with a terminal or communicating word processor, a spokesman said. The service costs $24/access hour from Auerbach at 6560 N. Park Drive, Pennsauken, N.J. 08109.



Off the Press



from Macho to Bet-Your-Company to Work Hard/Play Hard. They tell how slogans shape corporate identity and how imbuing a company with rites and rituals helps establish a culture. Many high-tech companies are featured. The book concludes with a chapter on the "atomized organization" culture of the future, in which the computer is a central factor.

Hardcover, 232 pages, $14.95, ISBN 0-201-10277-3. Addison-Wesley Publishing Co., Reading, Mass. 01867.

PRINCIPLES OF DATABASE SYSTEMS, Second Edition
By Jeffrey D. Ullman

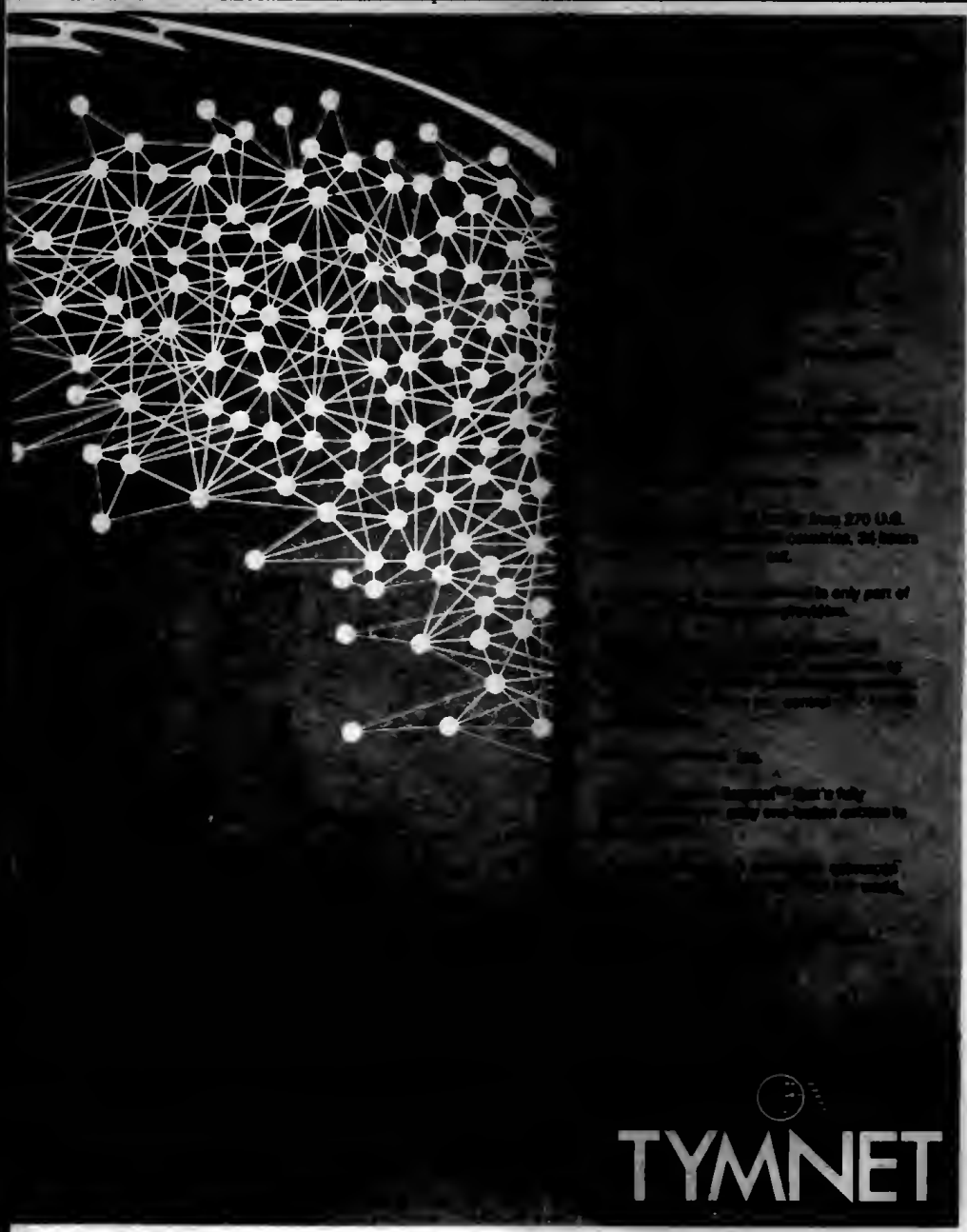
This book presents a comprehensive overview of data base topics without favoring or belaboring any one. In updating the first edition, the author has included material on the relational model (with good descriptions of the major languages), concurrency and distributed systems, as well as other topics. Optimization has been revised and expanded as well. An interesting chapter on the network model and the Data Base Task Group (DBTG) Data Definition Language is included.

Hardcover, 484 pages, $24.95, ISBN 0-914894-36-6. Computer Science Press, 11 Taft Court, Rockville, Md. 20850.

MANAGEMENT CONTROL OF DATA PROCESSING: Preventing Management-by-Crisis
By W.H. Inmon

The author's premise is that "the successful manager operates in a planned, action mode of leadership — not in a reaction mode where external forces leave the manager no choices." The book is itself a model of this idea: The first part discusses fundamental topics, such as crises, systems evolution and productivity. The next part covers specific topics, such as selecting a data base management system, growing out of an old machine and software limitations. The third part treats management topics such as discipline, managing growth and others.

Hardcover, 326 pages, $24.95, ISBN 0-13-548123-6. Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632.



PUSHBUTTON FANTASIES: Critical Perspectives on Videotex and Information Technology
By Vincent Mosco

Despite its innocuous title, this book is a serious and, as the title implies, critical exploration of the impending information age. Although it covers videotex, it goes far beyond the glamor of "shopping at home" served up by most who write about the subject. The author provides keen insight into the four areas in which communications technologies are having the most impact: the work environments, the home, the government and international relations. Mosco examines the internecine business and political aspects of wiring our country and the world and substantiates his points of view with solid fact. Along with quotes from key players and documentation from a wide variety of books and reports, he presents charts showing "director interlocks" — or other interests — in several key communications companies and lists of communications companies that have defense contracts. Mosco's conclusion is that information technologies are proliferating and need to be assiduously managed and controlled.

Hardcover, 195 pages, $22.50, ISBN 0-89391-125-9 (also available in paperback, $10.95). Ablex Publishing Corp., 355 Chestnut St., Norwood, N.J. 07648.

MICROPROCESSOR DATA BOOK
By S.A. Money
MICROPROCESSOR INSTRUCTION SETS AND SOFTWARE PRINCIPLES
By David L. Heiserman

These brand-new, bright red books (from two different publishers) should prove useful to anyone doing microprocessor design and analysis. Money's book is a compendium of useful data on nearly every chip, whether American, Japanese or European, from 4-bit to 16-bit. He describes the chip's architecture and operation, parameters, pin connections and cross-references to other chips.

Heiserman's book explains programming principles and working with the instruction sets for microprocessors. He begins by discussing microprocessor programming, then hardware and program instructions, moving on to more detailed topics such as memory, registers, subroutines and branch instructions. Heiserman uses four microprocessors to demonstrate principles and applications: the Zilog, Inc. Z80, the Intel Corp. 8080A/8085, the MOS Technology 6502 and the Motorola, Inc. 6800.

Money: Hardcover, 264 pages, $38.00, ISBN 0-07-042706-2. McGraw-Hill Book Co., 1221 Ave. of the Americas, New York, N.Y. 10020.

Heiserman: Hardcover, 440 pages, $29.95, ISBN 0-13-581090-6. Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632.

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Study Sees Increased Role For Distributed Resources

By Paul Gillin
CW Staff

FRAMINGHAM, Mass. — Distributed resources will play a greatly increased role in future large information systems planning, according to a memorandum released to clients here by International Data Corp. (IDC).

The availability of low-cost, high-power desktop computers and microcomputers and advances in parallel computer device technology will cause institutions to consider distributing resources rather than adding memory to an existing mainframe, the study concluded.

Desktop computers now offer up to 5K bytes of main memory, 1.3M bytes of disk storage and the ability to load a 10K-byte program in half a second for less than $4,000. These are dramatic examples of the processing power now available to end users, the study noted. In addition, data base management system (DBMS) vendors are now offering large application interfaces that may alleviate software compatibility concerns.

Study Highlights

The study highlighted several areas of distributed processing that merit careful study by mainframe users considering system upgrades:

• *Data Base Machines.* These processors handle heavy-volume search and retrieval applications in a separate box and pass the data back to the mainframe.

• *Graphics Workstations.* Future desktop computers may include high-resolution graphics capabilities as a standard feature.

• *In-House Time-Sharing Alternatives.* Many large users are now employing in-house time-sharing facilities based upon Digital Equipment Corp.'s VAX-II, Decsystem 10 or Decsystem 20; IBM VM/CMS systems; and products by Data General Corp., Wang Laboratories, Inc. and Sperry Univac. These are hospitable environments for in-house development, debugging and transaction processing. They also offer the potential for personal computing integrated into the mainframe environment.

• *Office Systems.* Word processing has provided the impetus for much of the move toward distributed processing. Its popularity is likely to continue, with the future looking especially bright for clustered terminal configurations.

• *High Service-Level Alternatives.* Vendors are looking closely at "never-stop" alternatives for businesses that require a high degree of computer uptime. Technologies include software-based solutions that provide high levels of error recovery and microprocessors that increase system redundancy.

• *Image-to-Image Transfer.* "Digitized image transfer" is an exotic and high-potential breakthrough in the optical technology field. This technology digitizes images in densities of as much as 200 bit/in. The data can then be transmitted through communications lines for recovery at remote sites with adequate resolution.

• *Desktops and Shared Resources.* Communications will be an area to watch in distributed resource development. Multiplexers and more recent offerings, including carrier-sense multiple access/collision detection network algorithms, will lower the cost per station of large file storage capacity. Advanced communications protocol support and terminal emulation will enhance terminal compatibility. Users should also watch for networkwide virtual memory, concurrent processing and multibus designs for I/O.

The report, called "User Alternatives for Large Computer Systems," is available to IDC clients only at no charge from 5 Speen St., Framingham, Mass. 01701.

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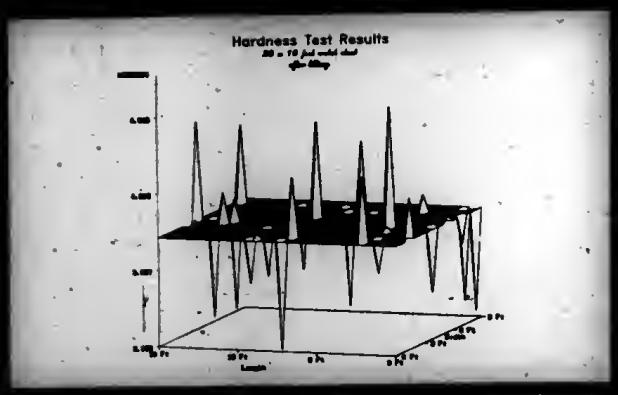

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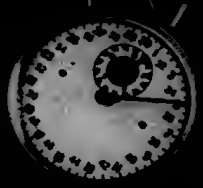

DPers Form Group to Block High Tech for Military Uses

By Marguerite Zientara
CW Staff

PALO ALTO, Calif. — "We deplore the squandering of our knowledge and skills in the pursuit of greater military power that contributes not to our security but to our common peril."

That is a statement from more than 100 computer scientists here who have joined forces against the use of computer technology for military purposes.

Computer Professionals for Social Responsibility (CPSR) currently numbers "about 150," according to CPSR member Stephen Zilles, a researcher in programming technology for a computer vendor, who announced the existence of the group at the recent Association for Computing Machinery (ACM) '82 conference in Dallas.

Technology for a Safe Society

"We call for the redirection of our talents, resources and energies toward more socially responsible objectives," the group's general statement said. "We resolve to work for a world in which science and technology are used not to produce weapons of war, but to foster a safe and just society."

How does CPSR plan to attain its goals? The group pledges to do the the following:

- "Encourage wide recognition of the global threat posed by the nuclear arms race."
- "Attempt to understand better the role that we and our technology play in the militarization of our nation and the world."
- "Within the computer science community, encourage debate and reexamination of the military uses of our technology."
- "Explore the ways in which general confidence in the expertise of our community has discouraged public debate of, and individual responsibility for, our national defense policies."
- "Work to dispel popular myths about the infallibility of technological systems and about the adequacy of technological solutions to our security problems."
- "Work with scientists and professionals in other countries to build motual understanding and urge our respective governments to abandon the threat or use of force as a method of resolving conflict."
- "Promote the use of our skills in combating the causes of war and in serving constructive human purposes."

The group grew out of communications in an electronic mail-type network at Xerox Corp.'s Palo Alto, Calif., research center, according to Severo Ornstein, a researcher in the computer science laboratory there. After six months of electronic discussion of the issue, "the group decided to write a letter to the president of Xerox, asking whether he was willing to sponsor a national television program on the subject," Ornstein said.

The result was the June airing by NBC of "Facing Up to the Bomb," one of a series of Xerox White Papers.

Spring also brought face-to-face weekly meetings of about a dozen interested networkers. In midsummer, the group decided to go public and drew "a wide variety" of DPers — numbering about 50 — to a public meeting at Stanford University.

Meetings contihue twice a month, and the group receives "many inquiries" from around the country, Ornstein indicated. "We'd be tickled pink if people started forming groups around the country, but we're not foolish enough to believe we can form a big national organization overnight," he added.

The CPSR can be reached through P.O. Box 717, Palo Alto, Calif. 94301.

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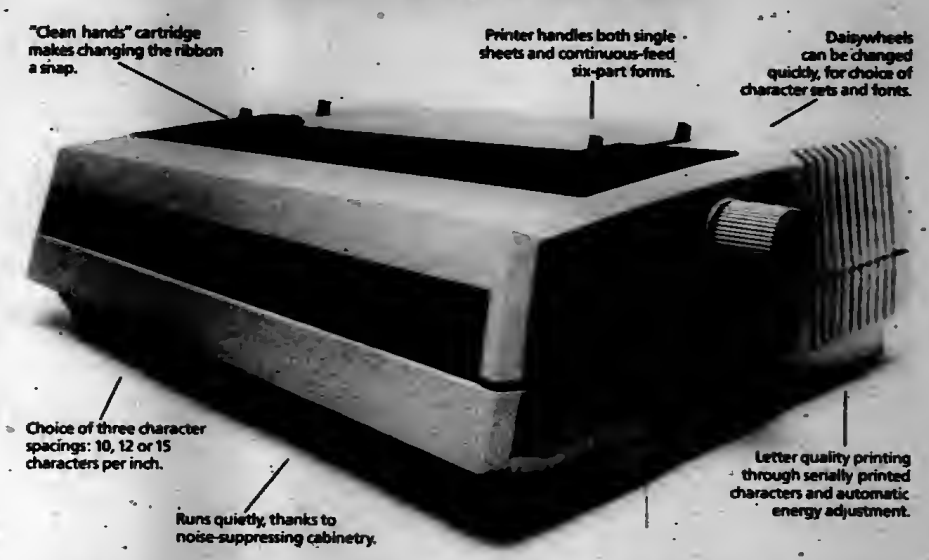

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Colleges Requiring Students to Buy Micros

By Tom Henkel
CW Staff

You cannot go to college anymore armed only with a box of pencils and a portable typewriter. At least four universities have instituted programs that make a personal computer a required tool for students.

In most cases, the students are expected to pay for the microcomputers through higher tuition fees.

Perhaps one of the most ambitious — and most expensive — personal computer projects was recently announced by Carnegie-Mellon University (CMU) in Pittsburgh, Pa. CMU has signed a joint development agreement with IBM under which the two will develop a personal computer operating system and local-area network that may eventually involve more than 7,500 workstations. University officials, however, have yet to decide whether the processor will be a requirement for students.

Despite protests from some CMU students who claim the cost of a required processor may be excessive (one university official estimated the unit could cost each student as much as $3,000 over four years), CMU and IBM are trying to come up with an intelligent workstation based around a 32-bit microprocessor and a unique operating system that can be used to access other workstations or other university resources. Unlike conventional systems, workstations in the CMU system will not have dedicated disk drives, but rather will have a unified filing system that will allow students to access their files from any workstation in the local-area network.

Workstations will be linked in groups of 50 to 100 that share a common memory. The processors, however, will have optional dedicated disk drives so students can use them as stand-alone personal computers after they graduate, according to university President Dr. Richard M. Cyert.

IBM is underwriting the CMU development project through 1987 and will supply 10 of the 33 people who will staff what CMU is calling the Information Technology Center. CMU will provide the rest of the staff. In addition, IBM will provide hardware support and will assist in development of Accent, an object-oriented operating system, and the local-area network.

In repayment for its help, IBM will receive all patents and software rights to the CMU system, a university spokesman said. IBM's investment in the CMU project is expected to exceed $20 million, he added.

Stevens' Micros

Freshmen at Stevens Institute of Technology in Hoboken, N.J., were required to purchase a $700 Atari, Inc. Atari 800 microcomputer for the start of classes this fall. About 100 science and systems planning and management students purchased processors, Stevens' Dean Edward A. Friedman said.

The processors can be used as stand-alone Basic language processors or as dumb terminals for Fortran programming on the university's Digital Equipment Corp. Decsystem-10 mainframes.

At Clarkson College of Technology in Potsdam, N.Y., next fall's freshmen will be required to buy a Zenith Data Systems Corp. Z-100 processor for a a fee of $200 per semester and a one-time $200 maintenance fee. The rest of the $3,400 purchase price will be covered by restricted university grants.

At the end of four years, title to the processor will be transferred to the student, a Clarkson spokesman said.

Plans for the Clarkson micros, based on Intel Corp. 8085 and 8088 microprocessors, include various schemes for linking them in a network that will include the school's IBM 4341 Model Group 2 central processors.

Eventually, Clarkson hopes to equip each of its 3,800 students with a Z-100 processor. Current processor configurations include 128K bytes of main memory, a 320K-byte floppy disk drive and high-resolution CRT.

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Economy, Management Said Major Impediments To Use of CAD/CAM

By Bruce Hoard
CW Staff

RENO, Nev. — A poor economy and top management are at it again, stifling another promising technology. This time the technology is computer-aided design and manufacturing (CAD/CAM).

Eight of the 10 attendees surveyed at the Computer-Aided Manufacturing International, Inc. annual meeting here recently agreed that money, management or a combination of these two factors is the major impediment to widespread implementation of CAD/CAM systems.

The absence of education was also cited as a major obstacle to CAD/CAM implementation.

Jerome H. Schensker, vice-president of manufacturing planning and support with the Cummins Engine Co. in Columbus, Ind., blamed the economy and ignorance for CAD/CAM's uphill battle. "The economic situation of the last two years has not allowed firms the funds to modernize," he commented.

In the long term, Schensker claimed, basic understanding by and dedicated support from top management is needed to stimulate widespread deployment of CAD/CAM.

Fear of Commitment

IBM's Bill Dick also put the onus on the economy and top management. When asked to name the obstacles to CAD/CAM, he replied, "fear of commitment." He went on to say, "You take a company that doesn't know much about CAD/CAM and its first impulse is 'Gee, this thing's expensive and I've been doing well enough.'"

CAD/CAM is coming no matter what anyone thinks, the Poughkeepsie, N.Y.-based senior applications consultant added. "It's just a case of when and how much."

A couple of attendees talked about the problems small companies have justifying the capital expenditures for CAD/CAM. Don C. Owens, product manager with NCR Corp. in Dayton, Ohio, was one of them. "In non-Fortune 1000 companies, the problem is price/performance."

M.D. Stewart of General Dynamics Corp. in Fort Worth, Texas, also mentioned the dollar squeeze on smaller firms. Beyond that, the supervisor for his company's Systems Integration Group talked about organizational problems: "Engineers, design people and manufacturing people have to work together, and in some companies, that's not easy."

"People" is Richard Bilden's opinion of what is handicapping CAD/CAM. The marketing manager for Interactive Graphic Services Corp. in Indianapolis said, "The hardware is there, the software is there. The peopleware is not there."

According to Bilden, it is up to top management to sell the system, and in the case of architects, that will not be easy. "I know because I'm an architect," he said. "They still don't trust the calculator."

If widespread CAD/CAM use is still in the future, then how far in the future?

"In three years, we'll be getting to the point where small companies can afford it," J.E. Carpentier of Video Monitors, Inc. in Eau Claire, Wis., said.

It is more like two to three years, according to Charles M. Hevenor, president of Engineering Automation Systems in Kensington, Conn. He said small companies are looking for systems with a combination of low costs and high functionality. "They're coming," he said.

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Exchange System Automated For Certificates of Deposit

WASHINGTON, D.C. — A national automated exchange for trading federally insured $100,000 certificates of deposit (CD) was recently established here by Harvey Baskin & Co.

The service is called Certificates of Deposit Exchange (CDX), and it enables depository institutions to market their CDs nationwide via Baskin's computer system, which is accessed over the phone. The system allows the issuer to adjust offers continually on a real-time basis and enables instant response to current market rate fluctuations, according to Gerard Snyder, president of Harvey Baskin. CDX was developed by Digital Analysis Corp. of Reston, Va.

The system, which became fully operational in September, integrates a voice-response system, a data base management system and application software to support the real-time response required by a national financial exchange. The CDX software runs on Baskin's Digital Equipment Corp. PDP-11/34 computer system under Bell Laboratories' Unix operating system. It draws on the Unify relational data base package from North American Technology, Inc. and a voice-response unit from Perception Technology Corp.

CDX maintains direct communications with State Street Bank & Trust Co. in New York, which is the issuing agent for CDX, responsible for clearing all CDX transactions. This ensures that proceeds are immediately credited through the Federal Reserve System, the company explained.

To offer CDs for trade, an issuer phones the CDX computer and enters an assigned access code. The computer uses digitized voice response to accept the listing, recording the quantity of certificates offered along with their maturities and interest rates. The entry is instantaneously integrated with the complete listiogs in the CDX data base and immediately made available for sale.

When purchasing through CDX, major investors call the company to determine what interest rate is available for various maturities in packages of $1 million or more. A CDX trader quotes the purchaser's rate calculated in real-time by the computer system. If the offer is accepted, execution instructions are electronically transmitted to State Street, which issues the CDs and arranges immediate electronic transfer of funds to the issuers' accounts through the Federal Reserve System.

Honeywell Sets Course Schedule

WALTHAM, Mass. — Honeywell, Inc.'s Education Services organization has announced a schedule of 36 business information sciences courses available for private on-site or general public offerings.

The programs are divided into three areas: management development, systems training and foundation training. An example of the courses available is "Implementing a Planning Method" (APM), a three-day management development course. APM is said to be a disciplined procedure by which long-range management informations systems planning can be effected.

The APM course will be held in Phoenix, Dec. 7-10; Atlanta, March 1-4; Wellesley, Mass., June 21-24; Chicago, Aug. 30-Sept. 2; and Phoenix, Nov. 8-11. Fees vary among courses. "Implementing a Planning Method" costs $540/person in a general public format, with a 20-person limit in the class.

Honeywell can be reached at 200 Smith St., Waltham, Mass. 02154.

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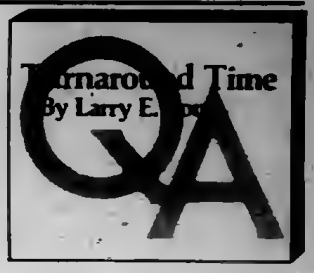
Should MIS Projects Be Delayed?



Q A consultant recommended that the start of e couple of large development projects be delayed by at least one year. This development slowdown is designed to free up management informations systems (MIS) resources that can be allocated to documentation, reorganization and the development of standards and procedures.

I report to e vice-president who supports the recommendations in theory, but is reluctant to delay the development of what he considers to be essential systems. Even though everybody is in egreement with the recommendations, they are being ignored by top management. Any support?

A During the growth of every Information Services Department there is a point in time at which the mess created to data must be "cleaned up." The consultant has identified that time as now.

Continued new systems development in the absence of e rigorous development framework and standards can only result in systems of marginal quality. Ask corporate managers if that is what they want. If members of management insist that the projects be continued, tell them that you will be happy to continue but cannot be responsible for the quality of the end product.

A well-ordered Information Systeme Department can provide more and better services.

Q We have e very good training program for our programmers and analysts during the first 18 months of employment. They are given formel instruction, video courses and on-the-job training (OJT).

The OJT guidelines do not permit us to use our trainees effectively. The guidelines distributed to me and other project leaders depict their role as primarily passive.

We hire good people end bore them to death for the first yeer and e half. I would like to get them involved in productive ectivities in the on-the-job portion of their program. What do you think?

A I egree. As soon as they ere educationally equipped to handle the task, make them e member of the pack. Throw them to the wolves.

Q My goal in the computer industry is to become e systems programmer, but I have heard that vendors ere now trying to do eway with this aree by producing maintenence-free systems.

Is it true that systems programming is becoming e vanishing profession?

A There is no such thing as e maintenance-free system.

Q I've been reassigned from my project manager'e position to e special projects group. My assignment is to compile e manual with guidelines for systems development end standards for programming. My only qualifications are that I'm familiar with the life cycle and my boss says I'm the only one who can write a coherent memo.

The decision has already been made to develop these guidelines in-house. Any ideas about where to start?

A You've been given two separate assignments. A systems development methodology and programming standards would normally be placed in separate manuals.

Organize the systems development methodology by the phases (typically four to seven) of the information systems life cycle. Identify and describe the activities to be accomplished for each phase, including the personnel involved and their responsibilities, criteria for decisions, considerations, approaches to a solution and cross-references to other methodology activities. Ten to 20 of these activities should be designated as milestone activities for project management purposes.

The methodology should also contain forms, formats, guidelines and instructions for all systems, programming, operations and user documentation.

The programming standards manual should contain descriptions and example uses of local programming conventions. Avoid tutorial text.

Give your colleagues credit for their professionalism and knowledge. Emphasize what to do, not how to do it.

Long, president of Long and Associates, is a consultant, lecturer and author in the field of information services. If you have e question you'd like him to address, send it to Larry Long, Editorial Department, Computerworld, *P.O. Box 880, Framingham, Mass. 01701.*

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Disaster Backup Decision Saves Library Employees From a Payless Payday

By Paul Gillin
CW Staff

NEW YORK — All was not quiet at the New York Public Library (NYPL) recently when a computer failure nearly left 2,500 employees without a weekly paycheck. But some administrative foresight prevented calamity.

The library administration had put its Digital Equipment Corp. PDP-11/70 computer on-line only a month earlier. "With an operation like payroll, we needed a backup in case the system went down," said Aida Diaz, the library's chief accountant. The administration elected to employ a disaster backup and recovery site, choosing the service offered by Arbat Systems of Hoboken, N.J.

The decision proved to be a good one. Repeated problems with the library's four DEC RM03 disk drives climaxed Aug. 24 when two units failed. That left the accounting department without the means to run its payroll, forcing the library to turn to Arbat only three weeks after its own computer went on-line. That evening, Diaz notified Arbat that the disaster backup would have to be employed.

The three representatives from the library arrived at Arbat's service center in Hoboken at 10:30 the next morning. By 6:00 p.m., they were on their way back to the city with the week's paychecks. "It was very, very smooth," Diaz said.

The Arbat service costs $12,000 annually with a $600 initiation disaster fee. It includes DEC PDP Models 11/23, 11/24, 11/40, 11/44 and 11/70 and VAX-11/730 and 11/780. It took the library's DP staff about two hours to prepare the Arbat PDP-11/70 for emergency use. A system generator test was run on the library computer and then transferred to the Arbat system to ensure compatibility.

'Big Advantage'

"Arbat offered the best hours at about the same price as other vendors," Diaz said. "They would allow us to run up to six weeks straight during the day. That was a big advantage over vendors who required us to run only at night."

"The center is used mostly for internal software development," according to Joe Malik, Arbat data center manager. "But in a disaster situation, whatever is running internally is deferred for the client."

"When we arrived, they were ready for us. They just said, 'Let's go,'" said Larry Plasil, a software consultant for Admins, Inc. of Cambridge, Mass., the company that designed the NYPL's financial software. "We didn't lose any time."

Running the library payroll was a benchmark of sorts for Arbat as well. It was the first time the service had been used, Malik said. Arbat also had to deal with a mini-emergency of its own when a 1200 line/min serial printer used for library paychecks went down. Technicians replaced the unit with a 300 line/min printer jury-rigged on a terminal port and continued processing.

"They were an excellent and attentive crew," Plasil said. "They literally brought in people every 15 minutes to check the system out. The backup site has been worth the cost," he added. "If we hadn't had it available, we would have had to wait to fix the machine. Sometimes, though, it can take a couple of days just to diagnose the problem."

Problems Traced To Marble Floors

NEW YORK — For nearly two years the New York Public Library was plagued by problems with its four Digital Equipment Corp. RM03 disk drives.

According to Larry Plasil, a consultant for Admins, Inc. of Cambridge, Mass., who works with the library's DEC PDP-11/70 system, "We had two drives replaced within a year's time and a constantly high error rate. The DEC engineers were baffled."

Since the rest of the DEC equipment was performing flawlessly, Plasil deduced that the problem must involve the vibration that characterizes high-speed disk units. "The drives were going through hell," he said. "The heads were getting out of alignment and touching the disks. A bearing even went out in one head."

This summer, the library DP staff finally traced the malfunction to an otherwise enviable structural feature of the library — the floors are solid marble: The lack of flexibility to cushion the vibration was causing the head assemblies to shake apart.

"We've since jacked up the rubber casters under the units and the problem has disappeared," Plasil said.

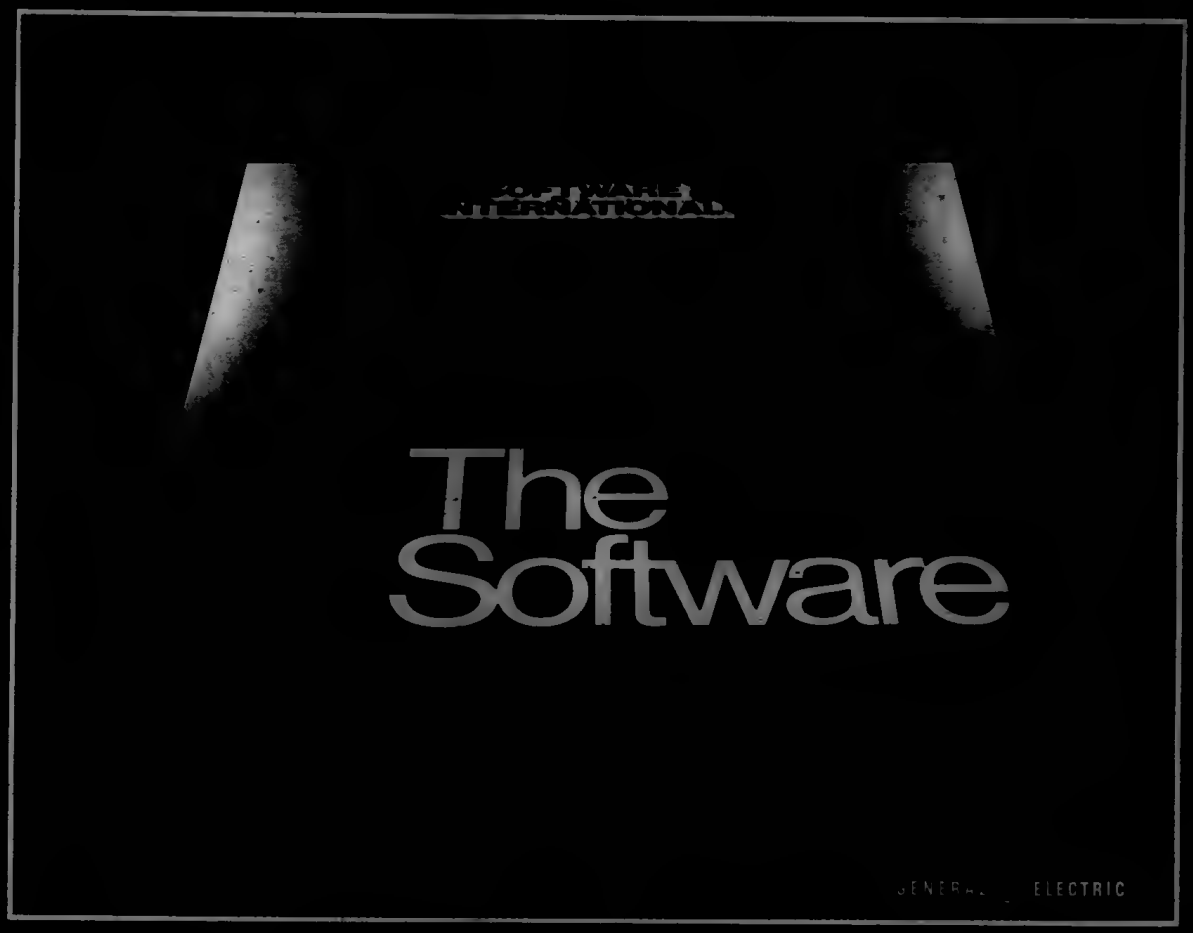
DEC engineers are not ready to dismiss the problem as solved just yet, but a spokesman acknowledged that operation has been error-free since the casters were installed. "Those marble floors don't give at all," he said.

Cbema Updates Privacy Bibliograpy

WASHINGTON, D.C. — The Privacy and Security Committee of the Computer and Business Equipment Manufacturers Association (Cbema) has recently updated its "Cbema Privacy & Security Bibliography."

This text contains 750 entries on books, reports and articles from the trade press on computer security, information privacy and relative aspects of transborder data flow. It is updated periodically, and readers are invited to send references on newly published material.

The reference text is free from Cbema headquarters at 311 First St. N.W., Washington, D.C. 20001.



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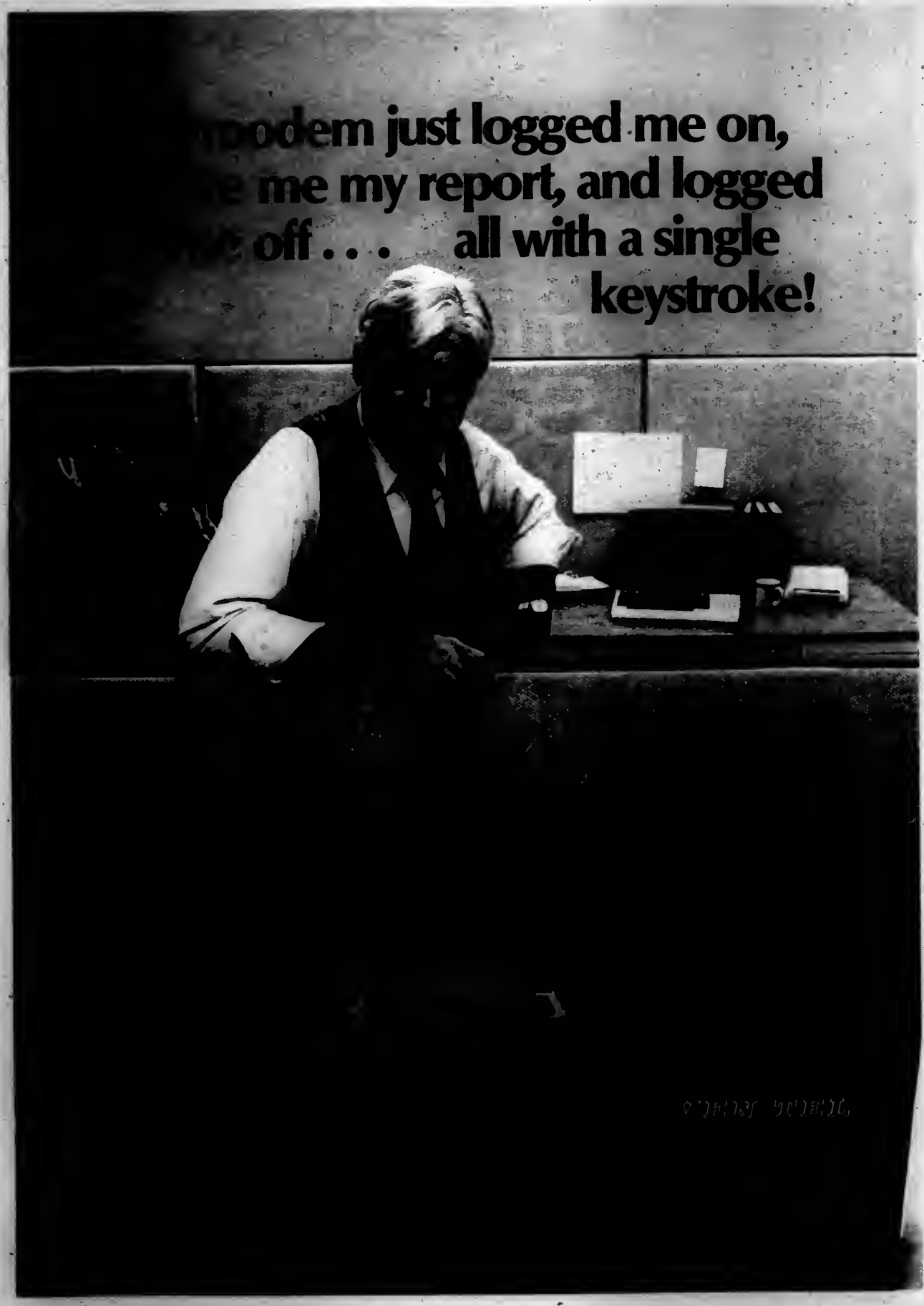
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DP Execs Seen Paying Lip Service To Human Resources When Hiring

By Robert Batt
CW West Coast Bureau

LOS ANGELES — The adage that a company's most important resource is its people is as true in management information systems (MIS) as in any other part of an organization.

But too many DP executives just pay lip service to human resources, particularly when interviewing prospective employees, according to Martin Wood, president of General Management Resources, Inc. (GMR) here.

"Hiring decisions are made by MIS managers according to how badly they need the job filled, what the resume has to say and gut feeling. This is a terrible way to make decisions about people who can make or break you as a manager," the management consultant maintained.

According to Wood, too much of the interviewing process is a matter of the blind leading the blind. Specific skills are needed to determine the accuracy of a resume and to interrogate interviewees about their abilities, he said.

Science of Interviewing

"Interviewing is the science of seeing people as they really are and their experience as it is and not as you would like to see them or how they might like to see themselves. Too many MIS managers are not trained in the interrogating part of an interview. You need to have the courage to ask specific questions and then to ask again if you are not satisfied with the answer. MIS managers are often uncomfortable doing this," Wood claimed.

Too many interviews, he maintained, are a waste of productive time.

Wood added "Decision making is not 90% gut feeling, but that's how many managers operate when it comes to interviewing — they regard it as cursory.

"More likely, decision making is 75% structure and procedure and if a company can help its managers to become better decision makers about the most important resource that they have, it will provide the vehicle by which those managers can accomplish their own and the company's objectives. It will create an environment in which growth can happen."

Most MIS managers, he asserted, think that salary, company benefits, job title or location are of primary importance to prospective employees.

The attraction techniques used by GMR are based on three different principles:

- The best people go to work for people, not companies.
- Top DPers choose those jobs for which they were thoroughly interviewed and where the organization truly knows their capabilities. "The best people want to know they were selected for special reasons over competition," Wood said.
- Able people go to work for a manager who, when interviewing them, profiled their prospective career within the organization, reviewed what they have done to date and pinpointed what they will need to do to fulfill their career goals.

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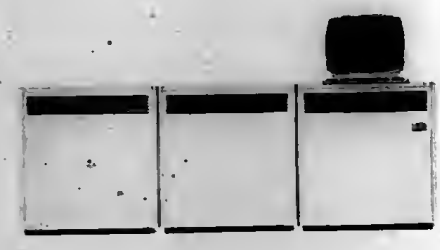

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Megatek Head Sees Graphics Require New DPer

By Robert Batt
CW West Coast Bureau

SAN DIEGO — The rapid growth of computer graphics will require a new breed of data processing professionals. It will also put a heavier work load on management information systems (MIS) departments, an industry executive here claimed.

Peter Shaw, president of graphics manufacturer Megatek Corp., said that MIS departments will require people who have a much better understanding of engineering applications and who are more flexible in their approach to distributed processing than current DPers.

"The growing number of graphics terminals will require more computer usage. There will be more finely tuned applications and graphics will bring more and more users closer to the mainframe. Users will work with different operating systems so that not everyone is going to be on that one IBM system," Shaw predicted.

The growth of graphics will necessitate greater investments by MIS departments, since graphics puts a high load requirement on support systems, Shaw said.

With more users having access to information through graphics, MIS managers will need tight security systems to prevent users from gaining access to the MIS data base itself, Shaw said.

However, Shaw maintained that computer graphics is a proven productivity tool.

"Because of the way computer-aided design and manufacturing is progressing, the design time for new products is becoming a lot shorter and engineers need every productivity tool they can get to help them," he said. As a result, programmers and analysts may be drawn into the engineering arena to a greater degree.

According to Hiram French, Megatek's vice-president of marketing, development in computer graphics technology will have implications for the MIS department. In the past, he asserted, there have been two main impediments to the widespread use of graphics. The first is the relatively high price for graphics capabilities; the second is that the graphics terminal was closely tied to the host computer.

Current developments in technology mean that graphics terminals can be much more remote. They can store data while a graphics application is running on the host computer, and users are getting faster response times. These developments mean that the DP professional will have to support more users and different types of users.

Different Demands

For example, the demand for resources from the engineering department will be different from the demands made by finance people. "Currently MIS departments are not equipped to handle the demands of new types of graphics users such as engineers. The engineering department, for instance, is very much a real-time operation whereas some other functions are not," he added.

As a result of these developments, Shaw observed, both DP professionals and end users will require more accurate information from industry analysts than they have received to date. Pointing out that 40 companies entered the graphics market in 1981 alone and that the population of graphics users is probably doubling every year, Shaw noted, "If you do not have a graphics terminal on your desk, you are likely to be considered out-of-date. As a result, people are buying a lot of things in the graphics field that turn out to be a waste of money.

"This is detrimental to the graphics industry," he added. "A lot of people are going to be turned off to a productivity tool that could be useful to them unless they receive better information."

MIT Gets Grant For DP Archives

CAMBRIDGE, Mass. — MIT's Research Program on Communications Policy has received a $150,000 grant from the Sloan Foundation to begin a videotape archive of computer pioneers. The purpose of the project is to preserve for future historians the words and images of the people who helped create computer technology.

Three subjects have been selected for initial tapings: the evolution of the stored-program digital computer, starting with the specialized computing devices built for the military during World War II; the growth of interactive computing, from the air defense and air traffic control systems of the 1950s through the development of time-sharing and remote computer connections over telecommunications facilities in the 1960s; and the introduction of commercial DP for business applications and the growth of the early industry.

Other subjects that may be covered are artificial intelligence, research and applications, the development of microelectronics and computer graphics computer games.

The project is being headed by Richard Solomon, a research associate of the Communications Policy Program, who can be contacted at MIT, Room E53-401, 30 Wadsworth St., Cambridge, Mass. 02139.

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Course on Fundamentals of Focus Slated for Nov. 16-17, 23-24

LOS ANGELES — A four-day course covering the fundamentals of the fourth-generation language Focus will be presented at the Marriott Hotel here Nov. 16-17 and Nov. 23-24.

Sponsored by Time-Sharing Applications and Consulting Services, Inc. (Tacs), "The Focus Intensive for Computer Professionals" will progressively build on key elements of the Focus approach to application development.

Aimed at applications designers with two years of DP experience, the course will cover "Data Base Concepts," "Focus Data Base Implementation," "Maintenance of Focus Files," "Using Non-Focus Files" and "Report Preparation and Decision Support Capabilities."

The two-day format was designed to let students work out the terminal exercises at their own installations while allowing for interactioo during the second week with other data processing professionals.

Limited to 12, the course costs $700 for up to two students and $500 for three or more students from one company.

Tacs is located at 15910 Ventura Blvd., Encino, Calif. 91436.

Careful Plan Key to Choice Of DBMS, Consultant Says

By Bob Johnson
CW New York Bureau

NEW YORK — Selecting a data base management system (DBMS) should not be a process of merely checking out products to see which one comes closest to meeting user requirements. Instead, the selection should be a carefully planned task handled by a data base administrator so that the DBMS "fits."

That was the opinion expressed by Shaku Atre, president of Atre International Consultants, Inc., at a recent meeting here of the New York Chapter of the Association for Women in Computing (AWC). Delivering a talk on current and future trends in DBMS based on a soon-to-be-published book entitled *Data Base Management Systems for the Eighties*, Atre said that the data base administrator must be concerned with user application idiosyncracies in order to map out a successful plan for obtaining a DBMS.

"All of the applications that are to be incorporated into the data base must be considered before any selection of an available DBMS can be made," Atre said. However, "this is not always the way it is done. Some DBMS managers, often right out of three weeks in DBMS school, will seek the DBMS that was said to be the best in their classes without true regard for what is needed and what will be used by the user."

The selection of a DBMS is often taken too lightly, according to Atre. She stressed that the user's application nuances are usually not uncovered before the data base is obtained, and the user company finds itself with a very expensive tool that does not do everything the user hoped it would do.

To avoid such problems as data redundancy, the data base administrator should realize that the proper method of combining data files into a usable data base hinges upon building a "user conceptual model" made up of the user's application requirements.

Logical Model

Atre pointed out that only after all of these considerations are made can a logical model for a DBMS be created that will successfully handle sharing, privacy and security functions in accessing data. She noted that corporations are now beginning to obtain many data bases to handle different applications instead of trying to get just ooe that will do everything.

"The DBMS must fit the application. If you need it for inquiry, it must perform. If you need it for updating, it has to be able to do that," Atre maintained.

A key aspect in building the DBMS is the logical model, which Atre described as providing user views on available data. "It [the logical model] will view what users want, and what they'll get," she said. The logical model is the basis of what will be happening internally with the DBMS, she added, and it should be planned with a great deal of forethought and respect.

Atre said that although there are a number of commercial DBMS available, all "full-fledged" DBMS have common components.

Among them are the data model, the data description language, physical files, data manipulation language, application programming, query and report generation capabilities, data dictionary, data communications capabilities and system installation.

Some of the key components at which data base administrators should look when choosing a DBMS are the data description language, data manipulation language, data dictionary and data communications capabilities.

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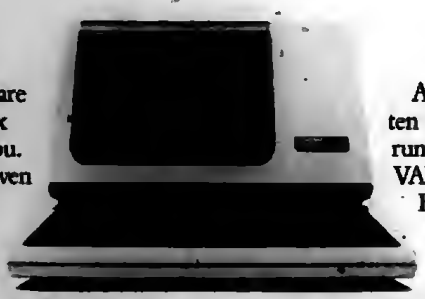

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Information System Helps Hospital Track Patient Data

ROSEMEAD, Calif. — To help pick the right computer system, personnel at Ingleside Hospital took the computer-aided modeling approach.

In esrly 1981, the 146-bed psychiatric hospital decided to acquire a hospital information system (HIS) based on tha results of a feasibility study and an assessment of its information needs. A team of Ingleside personnel and the hospital consulting firm, Interactive Medical Systems Group, Inc. (IMS), determined that the hospital needed an integrated data base management system allowing for interactive communication and data gathering via CRT terminals and printers scattered throughout the hospital.

To help the Ingleside staff conceptualize an on-line system, the consultants used a CRT terminal and a time-sharing computer to demonstrate various on-line programs. As these programs were demonstrated to model potential system capabilities, changes were made to reflect the various information needs of departments. Using these modeling techniques, hospital personnel were able to see how their system would work and were able to define explicitly their special information requirements.

After the appropriate models were established, a draft copy of a system users' guide was developed to document the requirements and confirm how the system would operate. The draft was submitted to Ingleside's auditors for approval.

Next came the purchase of a Hewlett-Packard Co. HP 3000 computer and the subsequent acquisition of CRT terminals and printers. After the task of entering patient histories into the data base, the Patient Management System (developed by IMS) was tested and training of admissions office personnel began. By the third quarter of 1981, all patient records had been entered into the data base and operation of the Patient Management System commenced. Before year-end, additional CRT terminals were installed in the wards and ward secretaries had begun to enter patients' status, transfers and discharge information on the system.

Over the next six months, the IMS patient billing, accounts receivable and general ledger systems were installed. An outpatient appointment scheduling and utilization review system was also installed as the final component of the HIS.

Patients Identified

All patients admitted to an Ingleside care program are identified in the HIS, according to John Roughan, vice-president of Ingleside. "The system prompts for patient demographic, insurance and additional information during the admissions process. Once minimum data is entered for a patient, an admission form is printed for the patient chart and medical records," he explained.

Following admission, patient information is entered into the system from terminals to report transfers, lab tests and other data affecting the patient record and account.

Hospital reports processing is said to occur automatically. Ad hoc reports are also facilitated by tha system. In addition, the system's word processing capabilities are used to maintain hospital policy and procedure manuals and various other documents as needed.

Apparently, users at Ingleside are happy with the system. In fact, an HP microcomputer is being integrated into the system to handle decision support software and access to the HP 3000 for selected data.

Roughan attributes the success of Ingleside's HIS to the users' involvement from the beginning. "We defined the system through the users — we gave them what they wanted."

Breaking through the bottleneck

A powerful CPU is like a clever mind. Neither realizes its full potential without the ability to listen and reply. I/O bottlenecks stifle the responsiveness of any good system.

In the *Computerworld* November 29th Special Report on "Computer Input/Output," you'll read how to get more I/O for the dollar. Editor Tom Henkel has gathered material from experts involved with all the latest techniques in data entry; from networking to the use of micros, from voice to videotext. You'll get articles and tutorials on using COM, optical character recognition, demand deposit accounting systems, and more.

According to International Data Corporation, the world's largest computer industry research firm, the hottest area in the output side of the market is in printers because of the success of desktops, most of which have one printer per system. At this low end, in the business/professional segment of the desktop market alone, 301,000 printers were shipped in the U.S. in 1981. There were 773,000 total printers (not including high-end electronic typewriters) shipped in the U.S. in '81. On the input side, CRT's are the hottest market segment with more than 1,088,000 CRTs shipped in the U.S. in 1981.

Keeping up with this market is vital to the success of any operation, and this November 29th — you'll be brought up to date. And if you sell to buyers in the I/O marketplace, you'll want your ad where your buyers are — reading "Computer Input/Output" in our November 29th issue. Ad deadline is November 12th. Call your *Computerworld* sales representative listed below, or, for more information call Don Fagan, Vice President, Sales, at (617) 879-0700.

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Distributed System Meets MVD Challenge

SANTE FE, N.M. — Though state government agencies welcome the influx of new residents who are attracted by New Mexico's mild climate each year, it is a challenge for them to serve expanding population demands with tightly controlled financial resources.

The state Motor Vehicle Division (MVD) here met the challenge by purchasing a distributed processing system to offer expanded services at reduced costs.

The division's audit of its procedures revealed that its 74 field offices completed more than two million transactions annually. Every transaction had to be processed at the field office, compiled at the end of each day and forwarded to the main office here — where it was validated, reprocessed, prepared for entry and lined up behind the submissions of a number of other state agencies that shared the central host computer.

Obsolete Records

"Given the number of steps through which that information passed," said Manuel Montoya, data processing manager, "we were looking at about a two- to four-week gap from the time an application was made to its entry into the host computer. This meant that the majority of the records we had access to were obsolete. It was a costly procedure in terms of time, money, effeciency and service to the public."

For the citizens of New Mexico, the division's procedures created a number of inconveniences. The applicants would line up at one window to apply for a license, another window for title and registration and still another to pay the fees. The clerk at each window would type the pertinent information onto forms, and the applicant would be told to expect the documents in the mail within the next 30 to 60 days, a division spokesman said.

Errors under such pressure were consistently high and the time lag between applications and receipt of the document created serious problems. For example, the police could not identify a driver in a car leaving the scene of an accident or the scene of a crime if the car had been registered within the past month. The ownership information on the vehicle was not available so the police did not know who to arrest, a spokesman said.

Committee Established

A committee consisting of Montoya and several others was established. The committee formulated a request for information and mailed it to 20 vendors, 16 of whom responded. All 16 vendors were invited to an advisory session at which the division outlined its needs and issued a request for proposal. When the points were totaled, the committee narrowed its list of eligible vendors down to three: Harris Corp., IBM and Wang Laboratories, Inc.

According to the report titled "New Mexico's Distributed Processing System," the Wang system was chosen because of its "ability to outperform the others in selected tasks." In addition to its ability to process 2,000 transactions per minute, the system has other advantages, the division found.

"The ease of programming and program development was also an important factor," according to Sam Page, the division's system developer. "The way the programs are developed, written, tested and debugged is much simpler on the Wang system because versatile screen manipulation functions make the whole process really easy," he said.

The division's idea was to establish a distributed processing system built around Wang VS computers in five regional locations. In addition, multiple CRT workstations and various printers were installed for documentation and report generation. At present, these regional sites are linked to a host IBM 3031 via direct telephone lines.

In turn, each regional site is host for several satellite offices and contains all vehicle ownership and registration records, the names of drivers whose licenses are due for renewal and, in an administrative action file, a list of all drivers whose licenses have been revoked, denied or suspended. Communications with the IBM host is accomplished interactively via 3270 protocol and in remote batch entry mode via protocol, a spokesman said.

Now, when a registrant enters any one of the 10 motor vehicle offices equipped with a Wang system, he queues in only one line to see one clerk who, by menu and operator prompts, is led step-by-step through all the procedures required in any transaction. Fees are also computed automatically and collected by the clerk, who then inserts the check into the printer for automatic endorsement.

This procedure sets up an audit trail by validating the amount of the check, five letters of the applicant's name, the document number and other teller information needed to identify the transaction should the check fail to clear the bank. So the applicant, who formerly would have waited 30 to 60 days for the documents, receives them immediately unless a lineholder exists — and even then, the applicant receives them within a few days.

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The ROLM Distributed Digital Network.

Benchmarks Key to Final Selection

Firm Tests, Compares Development Software

TOLEDO, Ohio — For the Glass Container Division (GCD) of Owens-Illinois, Inc., benchmarks proved to be the final criteria in selecting application development software for the firm's computer operation.

The benchmarks used for the evaluation compared the system development and operational utilization merits of the software. As part of the tests, a portion of a new on-line system for sales forecasting was developed, and the comparisons were made while running identical transactions with each software product.

The final results of the benchmarks led the firm to select Cincom Systems, Inc.'s Series 80 Mantis package, Lawrence C. Swope, the firm's data base administrator, explained.

The firm brought the Mantis package in-house for evaluation in April 1981 and set up a three-person task force to evaluate it against other development software for response time, ease of use and personnel training.

Four Benchmarks

To compare operational utilization, four benchmarks were run for the sales forecasting system. During this portion of the benchmark, the firm concerned itself with CPU time, characters transmitted in and out and response time.

Series 80 Mantis inquired against a three-file Series 80 Total data base, also from Cincom, to return forecast information for the benchmark comparison, Swope said, noting that all coding was done by one individual with more than 10 years of DP experience. The individual's Mantis training reportedly consisted of a one-day, in-house session and three weeks of experience.

According to Swope, Mantis consistently used less CPU time, reflecting a savings of 24% to 61%. Also, with Mantis, a savings of 55% was reported over the most efficient development software then available at Owens-Illinois.

"We saved as much as 99% in character transmission and lowered our response time by as much as 6.3 seconds," he said.

Swope added that the ability of the application development system to interface with the Cincom Total data base was an important consideration. "Currently we have built more than 100 data base files and have plans to add more data to the system in the near future. Because the majority of our data is under Total, it is extremely important to us to be able to access the data as quickly and as easily as possible."

At the time of the evaluation, the Series 80 Mantis required the writing of Cobol programs to read data from the data base, he explained, but in September 1981, the firm installed the latest release of Mantis (3.0) with the Total interface, which eliminated this step.

The first major project for the GCD is to assist in developing a prototype of a very large corporatewide personnel system using Series 80 Mantis. The system will maintain pertinent information on the company's hourly-wage earners.

"During the prototype, Mantis will go against a test version of a Series 80 Total data base that represents the structure of the full-scale data base that will eventually support the production version of the personnel system," he said. "When the Mantis prototype is completed, approximately 50% of the on-line system will have already been coded."

Initially, the GCD will support nearly 150 Mantis terminals using an IBM 4341 Group 2 with OS/VS operating system. The operating system will be converted to MVS within the coming year. Should Series 80 Mantis be expanded throughout the corporation, the terminal network will increase to approximately 350 terminals, according to Swope.

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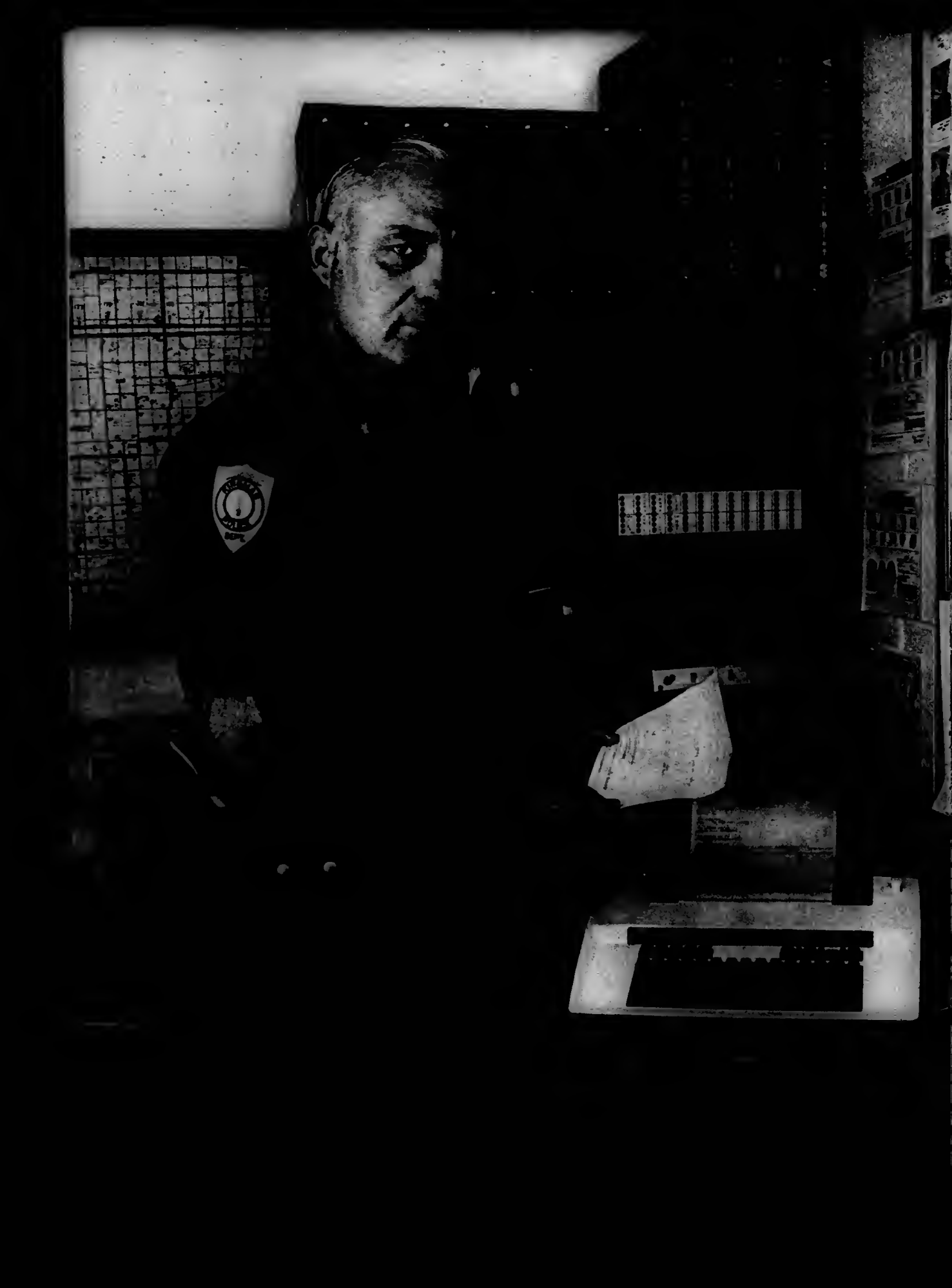

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The knowledge business

As T/S Era Comes to a Close

College Moves Aggressively Into Networking

By Brig Elliott
Special to CW‡

Dartmouth College in Hanover, N.H., is a small liberal arts college with a large hunger for computing.

The school invented Basic in the early 1960s and soon after developed its own time-sharing system to supply it. A later collaboration with General Electric Co. resulted in GE's Mark III time-sharing system and the Dartmouth Time Sharing System (DTSS). Dartmouth now runs two large DTSS systems, supporting over 300 users simultaneously and providing such languages as PL/I, Fortran 78, Cobol 74 and Basic 7; word processing tools; and other applications.

However, the era of time-sharing seems to be drawing to a close. Dartmouth is therefore moving aggressively into networking and personal computers.

Dartmouth's networking effort falls into three distinct projects:

- The creation of a large 10M-bit local network that reaches into every building on campus.
- The installation of Dartmouth's Avatar — a microcomputer-based distributed screen editor — in all offices and dormitories. (See story below).
- The design of personal workstations for academic use, employing such applications as bit-mapped displays.

Service Provided

Dartmouth has provided service to about 50 distant schools for 20 years, and for the past 15 years has planted terminal communications computers at various remote college campuses. The nearest of these has been over 100 miles away; communications have been with a Synchronous Data Link Control (SDLC) protocol over leased phone lines with data rates ranging from 1,800- to 4,800 bit/sec.

During the past three years, Dartmouth has developed a large local network to handle its increasing numbers of host computers and terminals. This network is based on New England Digital Corp. (NED) node computers programmed in a variant of the XPL programming language.

In 1978, the school decided to design an interim X.25 network, as with one programmer it was impossible to create both an X.25 and a token-passing network. At present the local network comprises some 20 nodes communicating over a variety of lines and protocols. The distant machines are about a kilometer from the central machines and use X.25 links over 19.2K-bit phone lines; the nearer machines run over 38.4K bit links and memory ports. Node machines are tied into both GTE Telenet Communications Corp.'s Telenet and Tymnet, Inc.'s Tymnet and support a Telenet-compatible dialect of X.25.

Dartmouth's next project is to bring up a virtual token network based on this coaxial cable. Special-purpose hardware has been designed and tested at 10M bit/sec. When completed, this network will be completely distributed, rather than the current star-shaped network that has several central failure points.

The X.25 network can run at speeds of up to 56K bit/sec. and is not yet strained. However, as file transfer between host machines becomes more common, the school will need the higher burst data rates provided by a coaxial network.

Within two years, Dartmouth will extend network service to all academic and administrative buildings and then expand the network to include all dormitories. Students will be able to connect terminals and personal computers to the network at will. This summer, Dartmouth began a program of selling terminals over-the-counter at wholesale prices (rather than renting them) and guaranteeing fixed-price repairs and resale. This policy is geared to encourage computer use by students.

Student Users

Already over 95% of Dartmouth students use the computer during their college years, for locating jobs, room rentals, signing up for concert ushering or writing papers. Thus terminals and network connections must be provided as cheaply as possible.

Dartmouth's current node controllers support up to 48 2,400 bit/sec terminals plus an X.25 link and Centronics Data Computer Corp. printer port, at a total cost of about $12,000. This works out to approximately $250 per terminal.

By 1986, Dartmouth's network will evolve to provide service from at least 1,000 personal computers scattered around the campus. These computers will have bit-mapped displays, fast processors, at least 512K bytes of memory, plus local disk storage and network links.

Since Dartmouth is oriented mostly toward the liberal arts, the computers must be very easy to use. In addition, users must be able to sit down at any machine and retrieve their files automatically, files must not be tied to a given machine; nor must users carry around disk packs.

Brig Elliott is the manager of software development at Dartmouth College, Hanover, N.H.

School's Network Plans Tied Closely to 'Avatar' Project

Dartmouth College's network plans are closely tied to its Avatar "editor-in-a-box" project.

The Avatar is a distributed screen editor, with a local screen manager that communicates with back-end editors in different host machines.

Since the Avatar interprets all keys on the terminal, many advanced functions such as scrolling forward and back, erasing parts of lines, marking and moving text, justifying and finding occurances of strings in the scroll-back memory are handled locally and thus are identical on all host systems.

The Avatar has two parts: a local screen manager packaged inside a box by the terminal and a distant editor that works in a line-by-line mode.

The local box handles all screen interactions and holds about 20 pages of manuscript or scroll-back memory. It communicates with the host machine via a sequence of Ascii editing commands much like what a user would type — lines of commands and text.

The Avatar runs very fast and redraws the screen at 9,600 bit/sec for instantaneous interactive screen editing.

Dartmouth has had 20 Avatars out in the campus for testing and evaluation for the past five months. The first order of 100 production Avatars will be installed in September, and several hundred more will follow. This production version of the Avatar runs on Zilog, Inc. Z80 microcomputers with either Zenith Data Systems, Inc. Z-19 or Datamedia Corp. terminals; different kinds of terminals are easy to add. This Avatar costs about $650/terminal.

Avatars have been used as front ends for the DTSS, Inc. system, Prime Computer, Inc. systems installed on campus, Bell Laboratories' Unix systems both on campus and in New York and for a Honeywell, Inc. Multics system availabie over GTE Telenet Communications Corp.'s Telenet.

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Aircraft Firm Takes Off With Graphics System

WICHITA, Kan. — A design overload for engineers at Beech Aircraft Corp. here resulted in a search for computer-aided design software.

Beech has been building airplanes since 1932. Today, the company operates eight plants in Kansas, Alabama and Colorado and offers 21 different airplane models. An increasing demand for the firm's twin-engine turboprop products meant corporate engineers needed the design software to help cut costs and optimize use of Beech's technical staff.

"Our engineers were straining to keep pace with growing design work loads, and they asked for this kind of help," recalled Larry Duntz, assistant manager for computer services.

After studying many possibilities, Beech adopted the Computer-Graphics Augmented Design and Manufacturing System (Cadam) developed by Lockheed Corp. Now used extensively by Beech's avionics engineers, Cadam is becoming an effective tool in manufacturing engineering and in research and development activities at Beech, according to Duntz.

With Cadam, the designer uses an IBM 3250 graphics display terminal as though it were a drafting board. All terminals are on-line to the firm's IBM 3033 processor, which maintains the computer graphics data base at Beech.

With a light pen to indicate the placement of lines and points, and a keyboard to enter descriptive data, the designer constructs the design geometry on the terminal screen, and the system automatically displays an exact scale drawing.

Screen images depicting the design geometry can reportedly be merged, stacked, rotated or juxtaposed by the designer, and he can view the design isometrically or in perspective. This system capability, the engineers pointed out, greatly aids the designer in visualizing the overall compatibility of his design and in spotting possible design flaws or interferences.

In addition, the computer graphics system offers built-in analytic capabilities, with which the designer can analyze stress, inertia, shear and bend points, Beech officials pointed out. These features, coupled with the design revision flexibility of the system, enable the designer to construct and evaluate more alternative design possibilities faster, according to the avionics company.

An example of Cadam's capabilities at Beech is in the design of customized cockpit instrument panels. The customer selects the type and extent of instrumentation and can also request the placement of instruments on the control panel, within the limits set by the Federal Aviation Administration, Beech explained.

Before the graphics system was installed, the avionics designer, working with the customer's specifications, would consume a huge chunk of time developing the initial control panel. These proposals, which were extremely compact and complex designs, were sent to the customer for approval and revisions.

Reconfigured Plans

When they returned to the engineering department, the plans had to be reconfigured, along with the back-panel schematics with corresponding wiring, cabling and power sources, resulting in a design backlog in the avionics engineering department and long delays in moving the aircraft into manufacturing stages. Cadam cut the control panel design and redesign problem down to size without increasing staff, according to company officials.

"The contribution of Cadam to the design functions is impressive," noted Chester Remleske, vice-president of engineering. "The system saves endless hours of routine, but essential, calculation time. It greatly speeds the development of complete, accurate, fully detailed designs, and it easily and swiftly handles the inevitable design changes.

"The shortened design turnaround time translates into more efficient, uninterrupted manufacturing operations," Remleske continued.

"This, in turn, translates into on-time delivery of the airplane to the customer at lower cost," he said.

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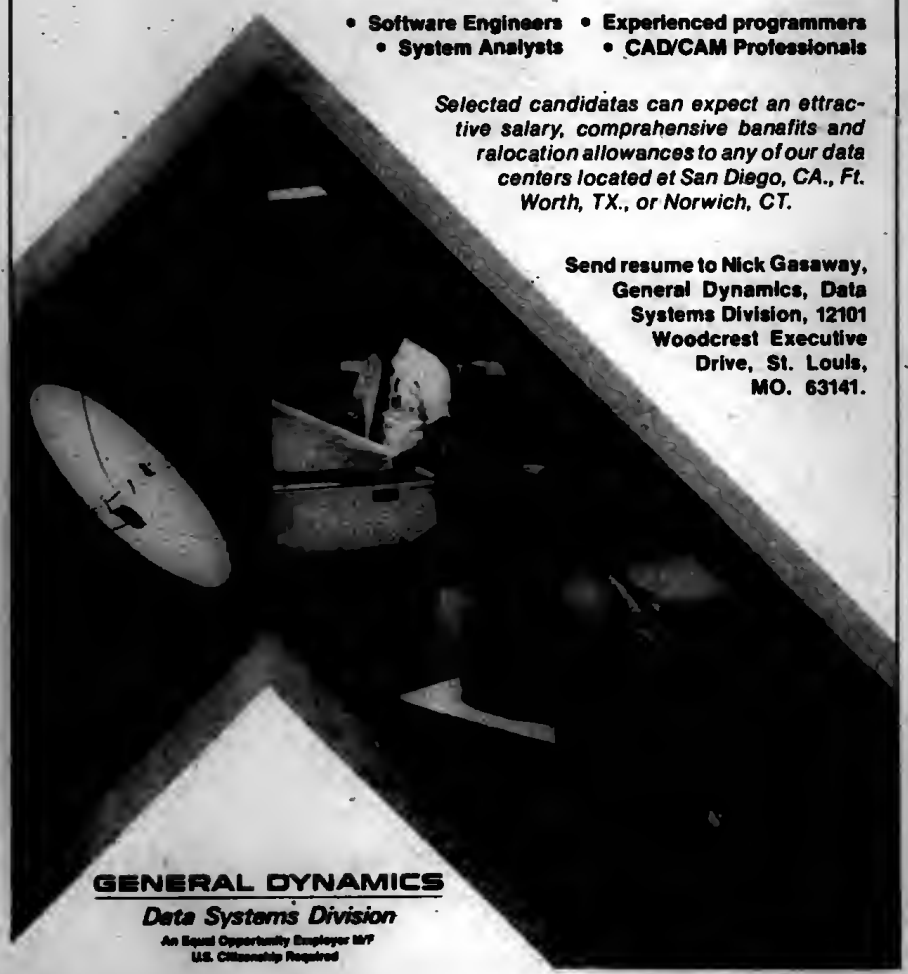

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Guide Covers Small Systems

DELRAN, N.J. — A guide to choosing, installing and managing small computer systems has been published by Datapro Research Corp.

The 1,000-page, two-volume *Management of Small Computer Systems* is written in nontechnical language and reportedly structured for easy use by both information processing managers and first-time purchasers of computer systems. A key component of the service is subscriber access by telephone to Datapro's staff of consultants.

Subscribers will also receive a monthly newsletter and supplements containing the latest information on hardware and software.

The service is now available at a prepublication price of $310, or $50 off the regular price. A free brochure describing the service can be obtained from Datapro, 1805 Underwood Blvd., Delran, N.J. 08075.

Using a Relational-Type Structure

Manufacturer Gets Timely Data With DBMS

NEW BRUNSWICK, N.J. — The time and resources devoted to patching and maintaining old systems at Johnson & Johnson Products, Inc. (JJP) were exceeding efforts to develop new ones, when management realized that if it was to maintain market leadership, new information systems had to be developed. The company needed to provide its officers with timely, easily accessible data and the means to analyze quickly thet data to support the decision process.

A feasibility study showed thet the systems were considered unreliable, untimely and inflexible. There were redundant master files, multiple systems performing similar functions, manual cross-checking and several reports containing similar information. With this information, the Information Services Group prepared and presented to management a recommendation that JJP adopt a data base philosophy and begin to redevelop all of its systems. The recommendation was accepted.

The implementation recommendation consisted of several steps. First, with the results of the survey, a project team was formed to select a data base management system (DBMS). Several were considered, but the one selected was Software AG's Adabas system.

Aside from providing the standard feature set of a DBMS such as a data dictionary, security, data integrity and so forth, Adabas has both a relational-type structure that provides the flexibility needed to develop a data base that can evolve with the company and a powerful end-user query language in Natural.

"The initial system survey showed that the above features and the ability to put up an application quickly were of prime importance. The company felt Adabas did the best job of fitting that environment," Robert Venetucci, JJP data administrator, said.

Pilot Project Support

Next, a data base administration group was formed to support a pilot project to develop a data base containing all product-related data, thereby eliminating the duplication that existed with current independent files. At the same time the product data base was being developed, the company gained experience with Natural by simply loading existing files to Adabas and letting users write their own reports against them.

The pilot project accomplished its objectives and solidified Adabas as a viable DBMS in JJP's environment. IBM Application Transfer Team (ATT) studies were conducted covering major areas of the business. These included manufacturing, materials management, distribution services and so on.

Next, user steering committees were established to set project priorities and allocate DP resources against the projects, based upon the strategic priorities and plans of the company.

Finally, the data base administration group's responsibilities were redefined and the Data Administration (DA) Group was formed.

Inherent in the data base philosophy of a shared integrated data resource is the need to manage centrally the data definition, structure and access. The DA was given responsibility for managing all computerized data. This included data definition, logical and physical data base design, access, security and so on. The DA group at JJP is made up of three subgroups:

- *Data administration* — responsible for the definition and management of data including logical and physical data base design.
- *Security* — responsible for protecting the data from accidental and deliberate modification, destruction and disclosure.
- *Decision Support Systems* — responsible for providing end-user access to the data.

Currently, JJP's decision support products include Natural, Mathematica Product Group, Inc.'s Ramis II with the Adabas interface and SAS Institute, Inc.'s SAS.

The company's direction and plans were fairly well-defined, but there were and still are several challenges ahead, Venetucci said.

The data base approach required a change in thinking by applications analysts. "They must now think in terms of data elements instead of files, new methods of recovery and restart, security, etc.," Venetucci said. Systems no longer own data, but now must share data, he continued.

"We have also transferred responsibility for data management from the analyst to DA. These changes are difficult for some applications analysts to adjust to. To overcome this we have relied heavily on training analysts in the data base concepts and frequently reinforcing the relationship between Data Administration and the applications teams."

In addition to training, clear data management and data base standards were needed to guide the applications analysts through the new approach required by data base.

Calendar

Week of Nov. 7

Nov. 13-14, New York — **CICS Internal Architecture Intensive.** Contact: Sys-Ed, One Park Ave., New York, N.Y. 10016.

Week of Nov. 14

Nov. 14-16, Carmel, Calif. — **Electronic Document Distribution.** Contact: The Institute for Graphic Communication, Inc., 375 Commonwealth Ave., Boston, Mass. 02115.

Nov. 14-19, Vancouver, B.C. — **DP Training Managers' Workshop.** Contact: Deltak, Inc., 1220 Kinsington Road, Oak Brook, Ill. 60521.

Nov. 15-16, San Francisco — **Local-Area Networks.** Contact: Data Communications, McGraw-Hill Publications Co., 1221 Ave. of the Americas, New York, N.Y. 10020.

Nov. 15-16, Arlington, Va. — **Software Protection: Current Developments in Copyright and Patent and Their Relationship to Trade Secret.** Contact: *Legal Times*, Harcourt Brace Jovanovich, Inc., Publishers, 757 Third Ave., New York, N.Y. 10017.

Nov. 15-16, San Francisco — **Networking, Protocols and Standards.** Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

Nov. 15-16, St. Louis — **Computer Controls.** Contact: Information Systems Resources, Inc., 1444 Balsam St., St. Paul, Minn. 55122.

Nov. 15-17, New York — **Computer Performance Measurement and Capacity Planning: Tools and Techniques.** Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

Nov. 15-17, San Jose, Calif. — **SNA Architecture and Implementation.** Contact: Communications Solutions, Inc., Suite 205, 10062 Miller Ave., Cupertino, Calif. 95014.

Nov. 15-17. St. Louis — **MVS Measurement and Tuning.** Contact: Center for

(Continued on Page 53)

Call for Papers

22ND ANNUAL TECHNICAL SYMPOSIUM, WASHINGTON, D.C., CHAPTER OF THE ASSOCIATION FOR COMPUTING MACHINERY '83, Washington, D.C., June 23.

The conference theme is "Microcomputer Systems. Tools or Toys?" Contributors are asked to submit papers on a wide-ranging review of the present and future state of microcomputers. Topics include design development issues, systems software, human factors, programming languages, law, medicine, education, embedded systems, data base management systems, applications hardware, communications, networking, international developments, management, control security, personal computing and office systems.

Papers should be submitted by Jan 7 and should be 10 to 20 double-spaced pages. Brief 400-word summaries on current research will be considered. All papers should be sent to Stewart A. Grossman, 2 Fallswood Court, Potomac, Md 20854.

THE SOCIETY FOR INFORMATION MANAGEMENT (SIM) '83, Chicago

SIM, formerly the Society for Management Information Systems, is seeking paper submissions for its 1983 awards competition. The first place paper will be awarded $5,000. Awards up to $3,000 will be made to the runner-up and finalists in the competition. Additionally, award-winning papers will be published in a special issue of *MIS Quarterly*.

Papers must describe a management information system (MIS), an approach to developing information systems, a technique for improving MIS activity or the management of MIS activity. The work described must be in place in an organization. Works described also must address top management concerns, that is, the system support of top management decision-making and the timely and effective presentation of information to top management.

Abstracts of 1,000 words or less are due Jan. 15. Upon notification of acceptance, completed papers are due May 15 and should be sent to Nancy E. Markle, Manager, MIS Development, Georgia Power Co., 260 Peachtree St., Atlanta, Ga. 30302.

EUROPEAN ASSOCIATION FOR MICROPROCESSING AND MICROPROGRAMMING (EUROMICRO '83), The Netherlands, Sept. 14-16.

Authors are invited to submit original papers on recent applications and developments associated with microcomputers. Topics will include, but will not be limited to, system architecture, network structures and interfacing. Accepted papers will be published as preprints at the symposium.

Further information on submission of papers can be obtained from Euromicro, T.H. Twente, P.O. Box 217, 7500 AE Enchede, The Netherlands.

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Calendar

(Continued from Page 50)

the Study of Data Processing, Washington University, Campus Box 1141, St. Louis, Mo. 63130.

Nov. 15-17, Washington, D.C. — **National Systems Executive Forum on Managing Software Development.** Contact: U.S. Professional Development Institute, 12611 Davan Drive, Silver Spring, Md. 20904.

Nov. 15-17, New York — **Second Annual Videodisc Conference.** Contact: Meckler Communications, 520 Riverside Ave., Westport, Conn. 06880.

Nov. 15-17, New York — **Data Processing for Non-DP Executives.** Contact: Chubb Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901.

Nov. 15-17, New York — **DL/1 Applications Programming.** Contact: Rosa Roseto, Comed, 1133 Ave. of the Americas, New York, N.Y. 10036.

Nov. 15-17, New York — **Improving Office Productivity: Principles and Practices.** Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

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Nov. 15-17, Madison, Wis. — **Surge Protection of Computers and Electronic Systems.** Contact: University of Wisconsin-Extension, Engineering & Applied Science, 432 N. Lake St., Madison, Wis. 53706.

Nov. 15-19, New York — **Auditing in the Contemporary Computer Environment.** Presented by Coopers & Lybrand, Contact: Marge Umlor, DP Auditors Foundation, 373 S. Schmale Road, Carol Stream, Ill. 60187.

Nov. 15-19, Washington, D.C. — **Reliability of Computer Software and Computing Networks.** Contact: The George Washington University School of Engineering and Applied Science, Washington, D.C. 20052.

Nov. 15-19, Washington, D.C. — **Satellite Communications.** Contact: The George Washington University School of Engineering and Applied Science, Washington, D.C. 20052.

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EDITORIAL

Keep a Close Watch on PACs

Now that the national elections are over, computer and communications industry lobbyists in Washington, D.C., are no doubt trying to gauge what the new Congress will mean for their companies. Besides the possibility of policy changes in the government, last week's winners list also demonstrates the effectiveness, or lack of it, of the campaign contributions made by the political action committees (PAC) administered by those lobbyists.

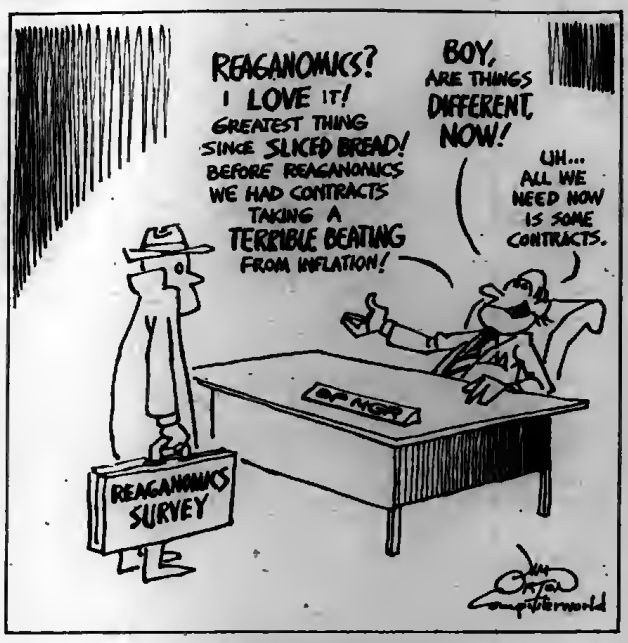
While the relatively small amounts of money these PACs were able to contribute were almost lost in the millions of dollars doled out to candidates nationwide, the 1982 election marks the first real experience of this industry's representatives in playing the high-stakes political support game [CW, Nov. 1]. As such, the election results should have an educational value much greater than the political impact of the moneys contributed in behalf of U.S. DP and telecommunications firms.

The association executives have probably learned valuable lessons in how best to target their PAC funds for maximum political impact. We hope an additional lesson has not been lost to them, namely, that giving political campaigns tens of thousands of dollars from corporate executives carries a large responsibility.

The associations insist their contributions are made for the good of the entire industry. Not to accuse them of cynicism, it should be remembered that different associations have different constituencies, in some cases with narrowly defined and opposing policy agendas. The so far unsuccessful legislative effort to restructure AT&T and the U.S. telecommunications industry is a good example of an instance in which there is a wide divergence of opinion among firms and their associations. We can only urge the PACs not to succumb to excess parochialism when determing how best to contribute for "the good of the industry."

While it is safe to assume the associations are aware of the interests of their members, it is not safe to assume the members — the potential contributors to the groups' PACs — are as aware of the priorities of their Washington representatives. These donors, therefore, have a responsibility as well: to monitor how their contributions are dispersed and to make their assent and dissent known to the PAC administrators.

In addition, the users of industry products and services should be aware that the PACs, soliciting money from vendor executives, are no longer relying solely on the strength of their arguments to shape national policy in favor of the industry that provides users with their livelihoods. It is, therefore, incumbent on everyone in the industry — users and vendors alike — to keep a close watch on how they are represented by the newly influential association PACs.



DATA PAST

Five Years Ago
Nov. 7, 1977

NEW YORK — Top IBM executives were told to "launder" their files after the Justice Department began investigating the firm for antitrust violations, according to government charges made here.

The IBM legal department also instructed the IBM executives to change the way they characterized the industry after the antitrust investigation began, Justice contended.

Ten Years Ago
Nov. 8, 1972

WASHINGTON, D.C. — The National Bureau of Standards launched a six-month survey of users in and out of government to determine the significance and impact of Ascii as a federal DP standard.

Under the federal standard, all new computers and related equipment brought into the federal inventory after mid-1969 were supposed to be compatible with Ascii.

LETTERS

On Being a 'DP Professional'

Working extra hours in data processing is a fact of life. There is always a project that must be finished by a certain date. There is always a problem that must be resolved (many times at 2 a.m.). The phrase "comp time" is often heard but is rarely a reality. The word "professional" is often used but in a very limited context.

Many professionals play golf on Wednesday afternoons, take long weekends and vacation several times a year. Because of being on call in the middle of the night or working extra hours to complete a task, it is considered reasonable to take long weekends and vacations when time permits. This is considered a necessity for morale and to prevent "burnout."

Being a "DP professional" in the most limited sense causes resentment and leads to a reduction in productivity.

Most people in DP are self-motivated because there is considerable pride in doing a job well. Because of the nature of the work, it is usually more productive to work beyond normal hours to complete a job rather than to stop and start again the next day.

Motivation and pride wear thin if there is not some acknowledgment and real consideration forthcoming. Many managers do not realize that motivation and productivity are being stifled by failing to address properly the issue of compensatory time.

Productivity and motivation could be improved substantially if a policy was defined rather than the ambiguous situation that currently exists.

For example, a policy that would allow 30 minutes of compensatory time to be accrued for each extra hour worked would benefit both the company and the employee.

Bill Kalafus
Boulder, Colo.

A Look at DP Education

Evan Wride, manager of employee systems at Denny's, Inc. ["MIS Exec Finds College DP Training Lagging," CW, Aug. 9], and James D. Godsey in a letter to the editor [CW, Sept. 20] condemned computer science education for not concentrating on business systems. This is somewhat unfair since computer science education is not intended to have a business systems orientation.

However, approximately one-half of the business schools accredited by the American Assembly of Collegiate Schools of Business do offer concentrations in computer information systems. These programs, unfortunately, are sometimes difficult to recognize since they are called by various names and are often administered through a department that includes another discipline such as accounting or management.

The development of regional and national model curricula in computer information systems should help to improve the visibility and hasten the growth of academic programs in this area.

Let us stop complaining that computer science graduates do not have a business orientation. Computer science degree programs should be judged against a relevant standard such as the Association for Computing Machinery (ACM) model curriculum in computer science.

Let us recognize and support colleges of business that are providing appropriate business systems degree programs such as those outlined in the Data Processing Management Association and ACM model curricula in computer information systems.

Robert F. Zant
Chairman
Business Computer Information Systems
North Texas State University
Denton, Texas

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SOFTLINE /Werner L. Frank‡

The Taxonomy of Implementation Systems

The modern tools supporting an application development environment include: the use of structured design and structured programming procedures to facilitate software construction, walk-throughs and inspection cycles to achieve higher quality assurance and exploitation of reusable code and self-documenting systems.

But there is a second way to construct solutions to a computer problem. Instead of the conventional programming efforts, there are development techniques available today that allow implementors to make parameter selections from offered choices and alternatives by responding to computer-generated prompts.

From such semiautomated means, application code is generated to deal with the problem to be solved — hence, the term "application generator."

'Developing' vs. 'Using'

This leads to the interesting question of what is meant by "developing" a solution vs. "using" a system. Is the Visicorp Visicalc user, constructing a spreadsheet with associated rules and relationships, implementing a specific application or simply exercising the result of someone else's implementation of a program?

Is the fully packaged general ledger turnkey system a finished product and ready for use by accounting personnel? Or is there an intermediate end user who specifies the environment, the transactions and the chart of accounts and who can be considered the real "implementor" of general ledger for the firm?

Finally, is the initiator of a query or request for a report an application builder or an application user?

We choose to include all of these cases as examples of the scope of the implementation systems environment, making up the overall spectrum of application development alternatives, as illustrated in Figure 1.

Furthermore, we seek implementation systems approaches suitable for both the DP professional and the end user, who will have varying degrees of computer literacy. Figure 2 shows four distinct categories of end users, all of whom have unique functions and requirements.

The solution environment, therefore, stretches from the DP-oriented, structured "anything" approach to the use of application generators and ultimately to the incorporation of integrated solution systems.

Examples of these three development technologies include:

1. Structured design and programming disciplines as espoused by the software development methodologies of M. Jackson, Ed Yourdon-Constantine, J.D. Warnier/Kenneth Orr and others.

2. The RPG, reflecting application generators.

3. Integrated solution environments such as the Mark IV System from Informatics General Corp. and Ramis II from Mathematica, Inc.

Solution environments are often data base management systems augmented by powerful front-end problem specifiers (the request language) and back-end presentation mechanisms (the report generators), thus giving an integrated flavor.

The ultimate integrated solution environment is, however, a user-oriented turnkey system, combining hardware and software to fit a very specific application need.

Although utopian today, a true solution system would respond favorably to a user's proverbial, "Do my job."

Terminology often used to describe the implementation system elements and schemes supporting the program development environment

(Continued on Page 56)

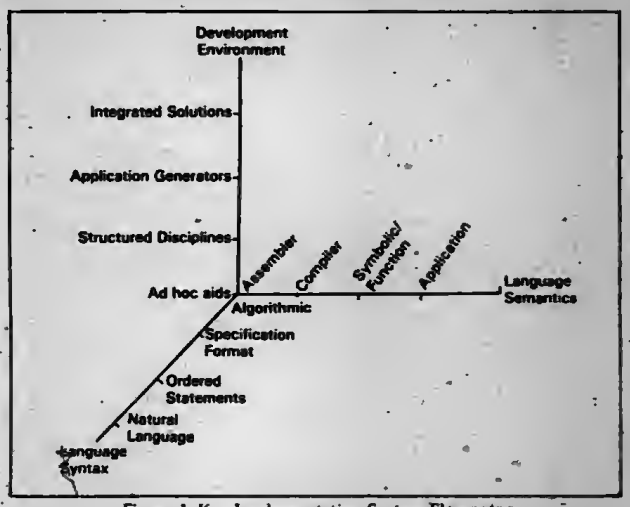


Figure 1: Key Implementation System Elements

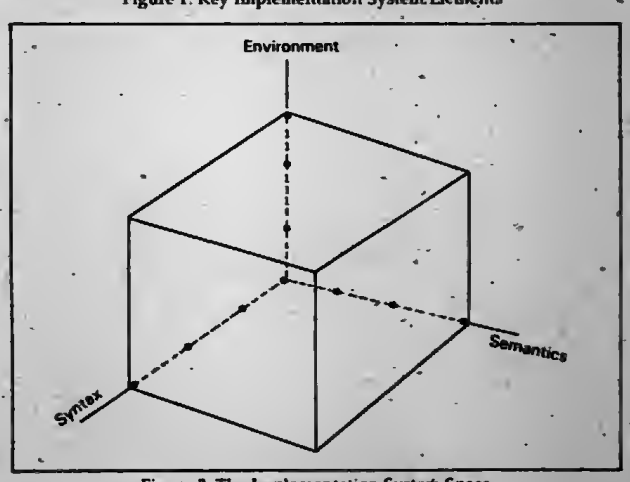


Figure 2: The Implementation System Space

GETTING AHEAD IN DP /Donald J. Berardo‡

Some Tips on Handling Your Annual Review

The dictionary defines a review as "a looking back on, a studying again." Looking back on what has happened already should produce few surprises, right?

This is not always the case with the annual performance review, which can bring both good and bad surprises.

Most people probably would agree that the good surprises are pretty easy to handle, so let's put you in a hypothetical situation with a bad surprise.

Here's what happens: You are a programmer/analyst with four years' experience. If forced to describe yourself as a worker, you would say that you are punctual, a team member and capable of completing projects on your own. Your salary last year was $18,500.

In your annual review, your supervisor rated you low in appearance, productivity and cooperation. The discussion became emotional and ended in disagreement. Instead of the 10% increase you had expected, you walked out with a 6% raise. You are angry and feel strongly that you have been treated unfairly.

Three Likely Options

What would you do? Many choices are available to you, but three of the most likely options are:

1. Go over your boss's head to his supervisor.

2. Get your resume up to date and start looking for another job.

3. Review your situation and ask for another meeting with your supervisor.

Even if your supervisor is totally incompetent, perhaps on his way out, and you have an exceptional relationship with his boss, the first approach is shaky. Its weakness lies in the fact that it challenges the structure of the corporate hierarchy, and the boss's boss probably will back him to protect one of the sources of his own authority.

There are a lot of good reasons to update your resume and enter the job market, but this particular issue is not one of them. Your disappointment and anger could lead you to rush your job search and land you in a poor situation.

Once your discontent with the new job overtook the satisfaction of leaving the old one, you could find yourself out in the job market for the wrong reason again and, possibly, starting to look like a malcontent, at least on paper.

Probably the best way to go, but also the most difficult, is to force yourself to be totally, completely and perhaps, even cruelly honest with yourself.

You must go through your supervisor's criticisms and assess both the factual discrepancies and the valid criticisms.

Now write a summary of the review, highlighting those areas in which you feel the boss was farthest off target and those areas in which you may actually need improvement. If it can be done reasonably, try to balance your points of contention with your areas for improvement.

Next, write a memo to your supervisor asking for another meeting in order to discuss the summary that is attached to the memo, set goals for your improvement and development and discuss how your supervisor can help you attain those goals.

Berardo is a management counselor and career therapist. He is a vice-president with the Meld Group in West Hartford, Conn., publishers of a monthly newsletter on management development.

HUMAN CONNECTION/Jack Stone

Exploring the 'Suitability' Factor in DP Hiring

Most DP managers hold to a standard formula for hiring a technical staff: They look for certain types and levels of experience with machines, software and applications. It's as simple as that.

Having such a mechanistic approach to the personnel acquisition problem has the important advantage of making the procedure wonderfully tractable. The hirers need only answer yes-or-no questions in a checklist, toss it over to "personnel," match the candidate's salary plus a $2,000 to $3,000 kicker and zap — another DPer is snared!

This issue is just another entry in a long list of management responsibilities wherein DP managers seize upon nice and easy solutions to complex personnel situations.

This is the first article in a three-part series on the suitability factor in DP hiring.

It seems not altogether illogical that, aside from assessing an individual's repertoire of technical capabilities, a modicum of attention could be paid to whether a candidate can function effectively in a specific organization and all that is thereby implied.

A.L. LeDuc, director of computer services planning and analysis at Miami-Dade Community College, expressed some significant thoughts on this subject in a recent letter.

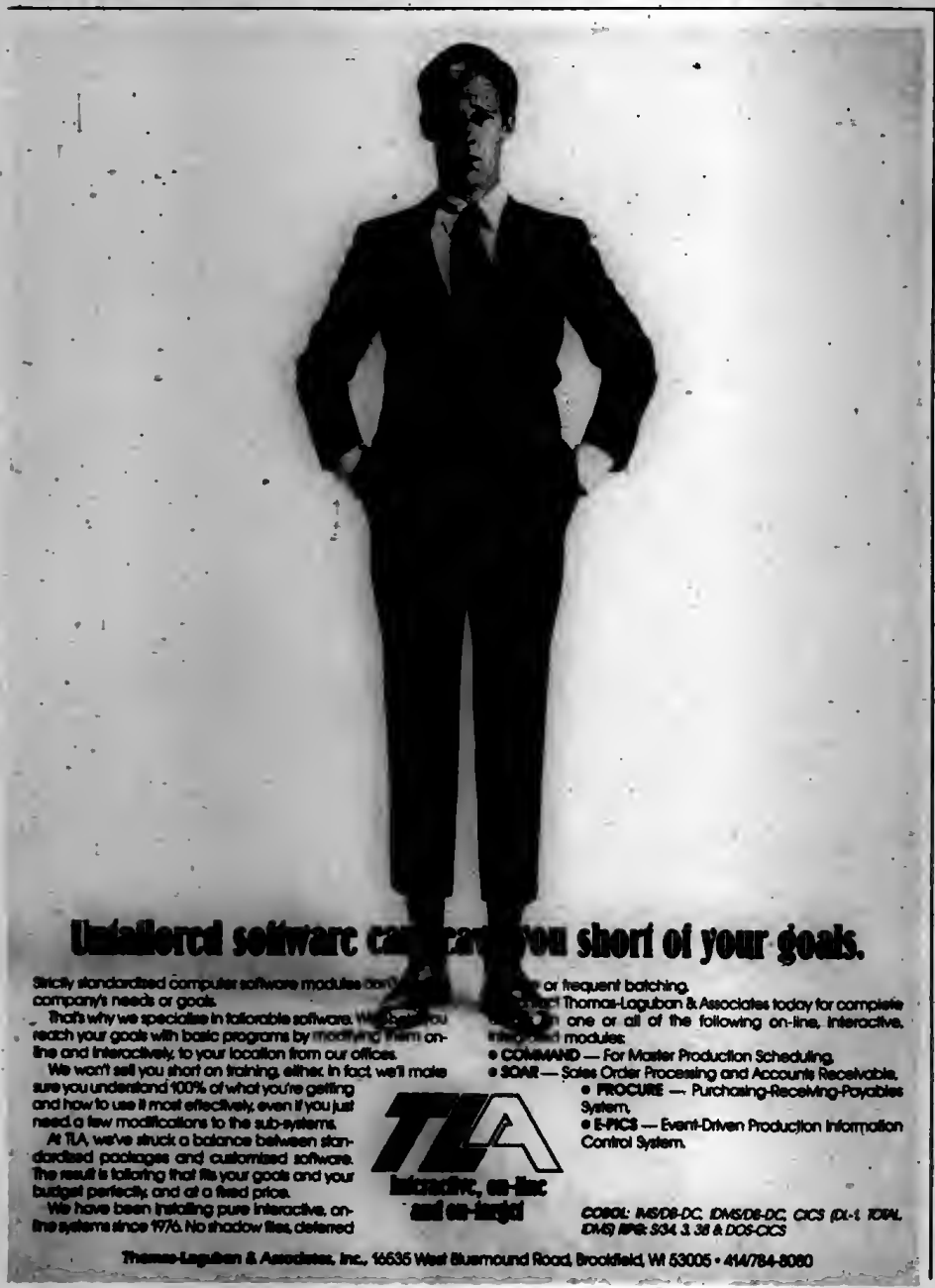
"In any data processing organization, we typically expect people to progress along certain career paths. The programmer should, we think, aspire to an analyst's position or a system programmer's. Each analyst should look forward to a career as a manager, each computer operator, a programmer.

"People and organizations are encouraged in these plans because of promotion possibilities. Unfortunately, these plans often lack substance, primarily because they do not account for the 'suitability' factor. Suitability is a slippery and elusive concept. It is, clearly, not a form of qualification for a job. It is not derived from the quantity and quality of experience or from the extent of education and training. It is not another way of saying 'competence,' because competence is a basic qualification for most jobs. Suitability is not even related to character.

"Suitability is, though, the key and final measurement of a candidate for a job. In the case where the qualifications of two candidates are found to be equivalent, the choice between them is made on the basis of suitability, whether the point is appreciated or not. In fact, in the personal interview, perhaps all we are really looking for is some measure of suitability.

"Just what *is* job suitabillty? It is the recognizable characteristic of fit that a person has for a position. The dictionary defines 'suitability' in terms of matching capabilities, similarity, ability to meet qualifications and satisfying characteristics. Even though these descriptora are general, auitabillty can be recognized in particular personnel situations.

"I'll wager that most DP managers are taken off balance by my assertion that suitability should be identified as a job selection criterion, and candidates should be rejected if deemed 'unsuitable.'"



Implementation Terms Listed

(Continued from Page 55)

Include language processor; subroutine linker; code generator; macro generator; editor; problem statement language; requirement atatement language; designer language; description language; application development facility; application generator; program generator; system generator; program product; software product; canned application; packaged application; turnkey system; solution system; programming environment; program constructors; reusable code libraries; predefined programs; program development system; and the IBM terms "Information Center" and "Development Center."

More recently, and looking to the future, the concept of the Automated Development Support System (ADSS) has emerged at the University of California. This is also emphasized in the Ada program development and its focus on support environments.

Here the concept is called the Ada Programming Support Environment (Apse). ADSS, or Apse, includes many of the tools and procedures suggested by the above list of labels and seeks to reach an optimal system for program development.

Frank is executive vice-president of Informatics General Corp. in Woodland Hills, Calif.

LETTERS

Julian Date Conversions

Richard L. Conner's letter to the editor on Julian date usage [CW, Sept. 27] is the first letter you have published on date routines that made sense.

We have used Julian dates here for two years with various embellishments. It is the last date routine anyone need have.

We have added routines to create, maintain and document Open/Close calendars.

These calendars are stored as bit strings and referenced by name.

Conversions can be made from any format to another (including same to same), and calculations can be done on any format in either business day mode or in calendar day mode.

In addition to these conversions, dates are always validated and day of week is always returned.

Gary Labowitz
Manager
Data Base Services
Federal Reserve Bank
Of Philadelphia
Philadelphia, Pa.

Binary Search Efficient

The table search method described by Ahmnad Ahmadi in his letter to the editor [CW, Oct. 4] would work well for a serial search.

However, most Cobol tables tend to be fairly large. Therefore, for considerations of efficiency, it is best to use a binary search on such tables.

Because the table arguments must be in sequential order for a binary search to work, Ahmadi's technique becomes fairly limited in its usefulness.

Jerry E. Gailey
Programmer/Analyst
Western Zirconium
Ogden, Utah

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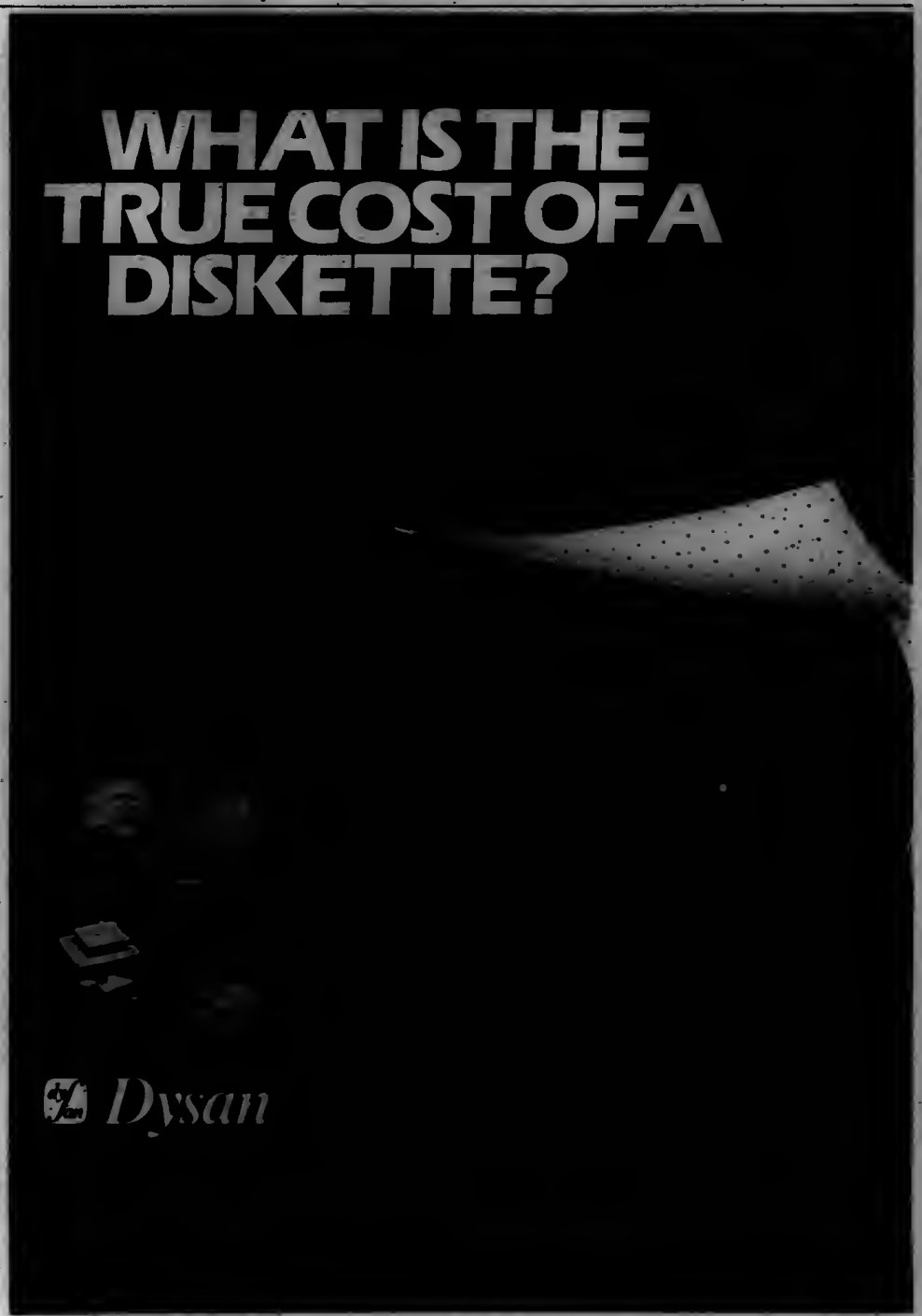

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LETTERS

Ancient PDS History

The article "PDS Problems Hit" [CW, Oct. 4] brought to mind some ancient history on the same subject.

In 1970, I had been working for six months at John Hancock Life Insurance Co. John Hancock was an MVT shop using several IBM 360/65s.

It was while working in the Education and Software Department that I began to be interested in the partitioned data set (PDS) problem.

It was a known fact that PDS were not shareable, so JCL procedures used disposition Old for them. The operators were complaining about all the occasions they had to reply WAIT when the PDS lockout problem occurred.

My wife was working in an on-line inquiry group that had the problem of coordination between the on-line request file and the hourly batch jobs when printed off requests.

After some study, they decided to use the enqueue/dequeue facilities of OS to serialize access to the request file.

I studied the OS initiator logic and I saw that all data sets in a batch job were enqueued "Shared" and if all dispositions were shared, they were enqueued "disposition Share"; otherwise the data sets were enqueued exclusively.

PDS had to be disposition Old, so each job would lock out all others.

I looked for other uses of the enqueue/dequeue and found the linkage editor.

The program would perform an enqueue/dequeue before writing to its output data set. It even used an option to enforce the exclusivity across multiple real CPUs. I studied the microfiche source code for exact details.

The next step I took was to write a program that would interface to IBM's IEBUpdate. IEBUpdate was the prime program that was used to update PDS members. I checked the program out thoroughly and was ready to roll.

Without obtaining any permission, I changed IEBUpdate to IBMUpdate and put the interface program in as IEBUpdate.

Then I changed the "update/assemble/go" catalogued procedures to say "disposition Share," figuring all along that nobody would notice.

They noticed one hour later, and everyone started screaming for my head.

No one could figure out who had the responsibility to change the JCL procedure. In addition to this, no one could figure out who could fire me.

They also noticed the jobs running faster and nothing unfortunate transpiring. Eventually, the situation returned to normal, and the interface program (60 lines of assembler) became a standard part of John Hancock software.

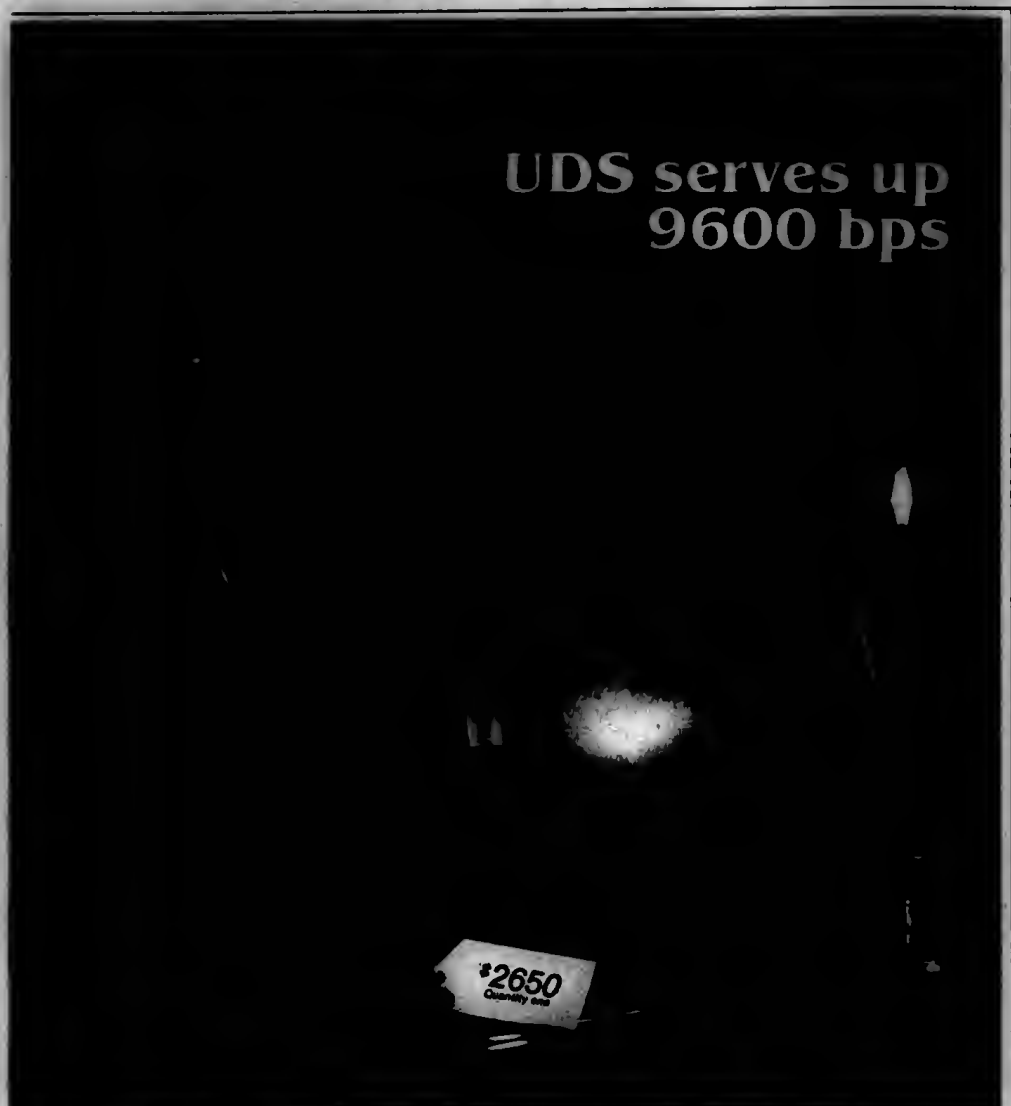
When the procedures became standard for all departments, there was a bit of excitement because overall throughput fell by 40%.

Analysis showed that 12 initiators were too many for the storage available. When this was reduced to eight initiators, which was no small political achievement, throughput increased approximately 15% and the operators no longer had to reply WAIT.

Since 1976 I have worked in the VM/CMS operating system, which is where such problems are all but impossible.

It is fun to think that such MVS restrictions continue to plague the user community.

John G. Alvord
Amdahl Corp.
Sunnyvale, Calif.



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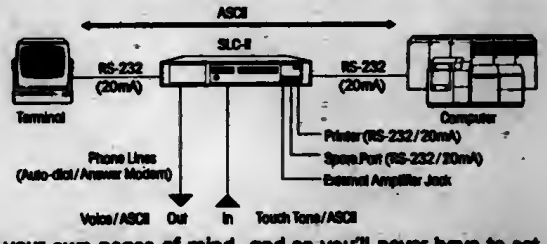

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LETTERS

More Subtle

The problem outlined in "PDS Problems Hit" [CW, Oct. 4] is more subtle than one would be lead to believe by the article.

Rather than being caused by simultaneous updates, as the article states, it is caused by simultaneous access. If an update is being processed at the same time a read is being processed, the data set control block (DSCB) in the volume table of contents can be updated incorrectly.

IBM has given the user the ability to update the DSCB for disk data sets even when the data set is used as an input data set. This is very useful when using the DSCB to contain information such as date of last access, which SU60 does. The scenario involved is as follows:

1. JOB A OPENS the partitioned data set (PDS) for update and processes it. At initiation to CLOSE, it reads the Format I DSCB for updating the end-of-file pointer.

2. JOB B meanwhile OPENS the same PDS. At initiation to OPEN, the Format I DSCB is read.

3. At the end of CLOSE for JOB A, the Format I DSCB is rewritten, updating end-of-file pointer (DS1LSTAR).

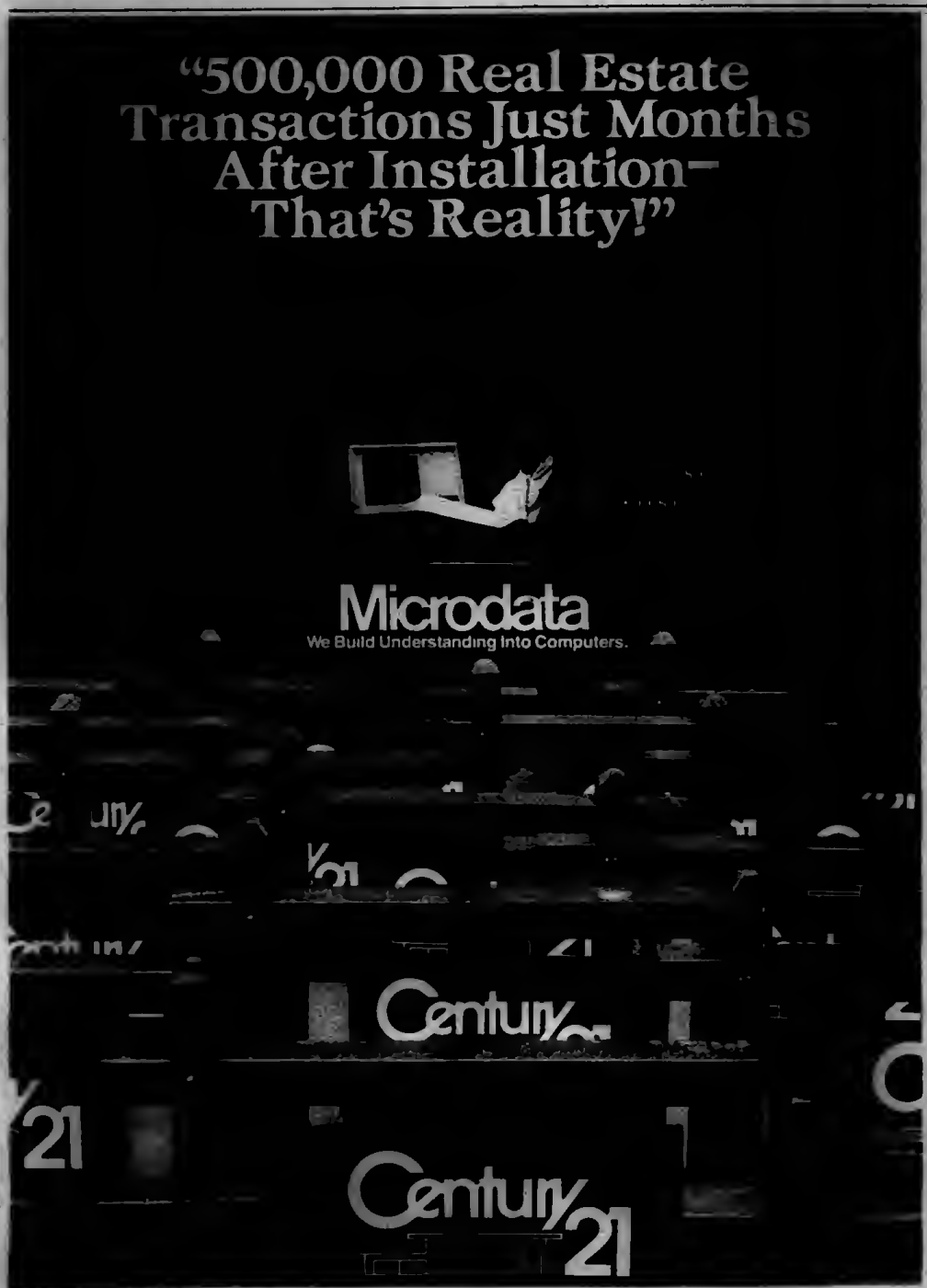
4. SU60/other OPEN Mods request OPEN to rewrite the Format 1 DSCB near the end of OPEN for JOB B, restoring previous end-of-file pointer (DS1LSTAR).

5. Thus, the next program to OPEN the PDS for output will pick up the same TTR pointer as was used for this update.

This can create severe problems with high-activity PDS, such as JCL procedure libraries, control card libraries, load module test libraries and so on. It is aggravated by the number of updates that normally occur with a teleprocessing network or with high job initiation rates.

The partial fix discussed in the separate box in the article only solved problems of multiple updates by batch utilities. While this is a definite problem, it is not the same problem as that of simultaneous access as detailed above.

Scott Moore
Assistant Manager
Computer Operations
Donnelley Marketing
Nevada, Iowa



PDS Phenomenon

I found the article "PDS Problems Hit" [CW, Oct. 4] to be an anachronism. The article gives the impression that this phenomenon is unique and recent and that it is virtually unsolvable unless IBM "fixes" MVS.

However, the condition (phenomenon or "problem" if you prefer) described is not new and unique to MVS, but is as old as OS and is common to MVT, MFT, VSI, SVS as well as MVS. The knowledge of the cause and effect of concurrent updates to a partitioned data set (PDS) has been around for 15 years. In addition to the effects illuminated in the article, I/O errors can result as a by-product of concurrent updates to a PDS.

This phenomenon has been addressed in numerable publications including "Share" and "Guide." Solutions are numerable and include proprietary software, front-end software, specialized software available from "Share," administrative controlled application of updates, specialized PDS update programs and so on.

The problem actually is a misapplication of disposition Share. By definition, disposition Share in a nonshared direct-access storage device (Dasd) environment for any data set type exposes those data sets to "damage" from concurrent updates. In a shared Dasd environment, exposure to concurrent updates exists independent of disposition without the use of a global resource serialization method.

The "problem" should not be viewed as a technical problem, as it seems to be by the interviewees in the article. Rather, it should be viewed as a functional problem, a business problem or a systems problem. A properly applied systems analysis should be applied to find the proper solution for the specific installation.

James G. Clayton
Storage Technology Corp.
Cincinnati, Ohio

Saves Time, Improves Control

Utility Increases Access to Data Base

GLENDALE, Calif. — "Applications programmers should have more access to the data base and more control over the applications that they are developing."

This is the belief of Ira Bland, manager of systems development for The Bekins Co. here, and his reason for seeking a data base management system (DBMS) for his development staff.

Bland realized that most programmers do not have the data base access or control they want to work with for a logical reason: If there are several individuals changing, manipulating and updating the data base at the same time, there is no control over who does what. Consequently, programmers handle the problem by either creating or recreating a subset of the data base or recreating the entire data base to test their applications as they are developing them.

These methods, however, require a great deal of extra programming time and additional disk storage and processing time. Also, much of the programmer's time is spent searching for items to validate a particular test, while much of the data base administrator's time is spent assisting the applications staff and supporting its testing efforts.

Another Problem

Working with a DBMS is another problem with which applications programmers must wrestle. As successful as they are in providing speed and efficiency in organizing and accessing data, DBMS (such as IBM's IMS) are complicated systems that programmers must understand before they begin developing and testing the applications programs for which they are responsible, Bland said.

These were some of the problems that Bland was trying to solve while also searching for a better way to give his development staff more access to the data base. During his search, he discovered a system called Databasic at a recent Data Processing Management Association conference in California. The utility system from Consumer Systems, Inc. of Downers Grove, Ill., was designed to eliminate many of the time-consuming problems related to working with a data base.

Management information services at Bekins operates as a corporate resource available to its various subsidiaries, including its largest subsidiaries, Bekins Van Lines in Hillside, Ill., and Bekins Moving and Storage in Glendale, Calif. Program development is done on an IBM 370/158 using MVS and IMS Data Base/Data Communications.

The first application that was developed using Databasic was a revenue accounting system for Bekins Van Lines. It was the most critical on-line application needed at that time. Before the revenue accounting system was implemented, the process of answering questions from Moving and Storage, other agents and customers was delayed because information had to be retrieved from microfilm.

"We needed a way to take advantage of our on-line inquiry ability to reduce the demand on the microfilm department for hard copies and to make invoicing and revenue accounting information more readily available," Bland explained. "About the time that we were preparing to

(Continued on Page 62)

Project Control Tool Targets IBM CPUs

CHICAGO — Chi/Cor Information Management, Inc. has introduced a software package designed to handle project control on IBM and plug-compatible mainframe computers.

Project Management System (PMS) is an on-line, real-time data base-oriented approach to project control, time reporting and management of data processing and other organizational projects, according to the vendor.

The product reportedly provides a range of standard and exception reports, together with a report writer for special inquiry. Project status and variance from the plan is displayed by project, project leader and client, complete with projected and actual costs, the vendor said.

PMS is priced at $15,000. Further details are available from the vendor at 10 S. Riverside Plaza, Chicago, Ill. 60606.

'UCC/Seven Basic' Aids Smaller Shops

DALLAS — An option has been added to University Computing Co.'s UCC Seven Automated Production Control System to address the needs of small data centers.

Called UCC/Seven Basic, it is a select subset of UCC Seven. It runs on any IBM or plug-compatible OS or OS/VS mainframe. The option has been specially developed for the growing, single-CPU center. Its on-line scheduling capability responds to unforeseen requirements, while the automatic job submission and task initiation features ensure on-time completion, according to the vendor.

This product guarantees adherence to job sequence requirements and provides accurate forecasting of future processing requirements, the vendor said. Its comprehensive JCL and job set-up facilities reportedly allow most set-up to be done on the day shift.

It can be licensed by single-CPU centers for an unlimited license of $36,500. Further details can be obtained from UCC at UCC Tower, Exchange Park, Dallas, Texas 75235.

ADR's 'Empire' DSS Supports DEC VAX

PRINCETON, N.J. — Applied Data Research, Inc. (ADR) has enhanced its Empire decision support system (DSS) to include full support of Version 3 of Digital Equipment Corp.'s VAX/VMS minicomputer.

Empire provides integrated on-line capabilities for performing statistical analysis, forecasting, color graphics and "what if" analysis for DEC's Gigi and VT125 terminals, a spokesman said. The enhancement offers Empire users direct access to the VAX full-screen editor. Any program or VMS command reportedly may be executed from within Empire. VAX sites running Decnet can also instruct Empire to access files on remote nodes.

The permanent license fee for Empire starts at $48,000, the spokesman said from Route 206 & Orchard Road, CN-8, Princeton, N.J. 08540.

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Shared Tape Allocation Manager, STAM, automatically manages mountable devices, (tape and disk), in multi-CPU installations. Allocation decisions for shared device pools are made automatically, thus eliminating the potential for disastrous operator errors and more effectively using these valuable resources than is possible with manual control.

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Superconsole is designed to provide a single console image for a multi system environment where console messages can be merged together to create a single stream on one or more designated consoles. The result is a more streamline and productive operating environment. Operators will have to monitor only one console instead of many eliminating the need for redundant hardware and personnel.

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Bakco Warehouse Package Expanded for HP 3000

ARLINGTON HEIGHTS, Ill. — Bakco Data, Inc. has expanded its Warehouse Distribution Application software enabling Hewlett-Packard Co.'s HP 3000 system to handle order entry of both labor and materials.

If the company requires the installation or repair of its products, both parts and labor can be entered through the Bakco order entry module. There are several types of labor orders that are accepted, such as warranty vs. nonwarranty orders, and in all cases both labor hours by type of labor and material can be entered to keep full accounting and inventory control records, as a by-product of normal order entry, the vendor said.

The Warehouse Distribution Application can reportedly handle an unlimited number of different labor services. It includes modules such as inventory and invoicing, and all are available separately. This product uses the HP 3000 data base management system, Image, and is developed through application generators, thus minimizing modifications to the application, according to the vendor.

The price for the Warehouse Distribution Application ranges from $4,000 to $8,000/module. Further details can be obtained from the vendor at Suite 190, 85 W. Algonquin Road, Arlington Heights, Ill. 60005.

Gould Offers Version of Seed DBMS For Its Family of 32-Bit Minis

FORT LAUDERDALE, Fla. — Gould, Inc., S.E.L. Computer Systems Division has announced a version of the Seed data base management system (DBMS) developed by International Data Base Systems, Inc. for its concept family of 32-bit minicomputers.

The package reportedly is a Codasyl-compliant network DBMS with a relational-like query language. It offers data manipulation and user convenience, along with integrity and information security. The complete system includes a query language, report writer, interactive data manipulation capability, screen formatter and file converter for processing information through a data base, a spokesman said.

A single-copy package price for the Gould S.E.L. version is $49,500 from Gould at 6901 W. Sunrise Blvd., P.O. Box 9148, Fort Lauderdale, Fla. 33310.

Logix DBMS Out For Unix, Venix From Venturcom

CAMBRIDGE, Mass. — Venturcom, Inc. has announced it is supporting and distributing Logical Software, Inc.'s Logix relational data base management system (DBMS) for Digital Equipment Corp. LSI 11/23, PDP 11/24 and 11/34 machines under Bell Laboratories' Unix operating system or Venturcom's real-time version of Unix, Venix.

The code-mapping and shared-memory features of Venix reportedly permits the use of the Logix DBMS on these DEC systems. The Logix relational DBMS reportedly provides users and programmers with a set of tools for manipulating data without extensive programming.

Logix also enables users to define relations, enter and edit data, create new relations and select items from a relation according to complex conditions, the vendor said.

The Q programming language is provided with Logix for processing queries, updating relations and writing reports, the vendor said.

The price for Logix for the above mentioned DEC systems is $3,500. Further details are available from Venturcom at 139 Main St., Cambridge, Mass. 02142.

Utility Facilitates Data Base Access

(Continued from Page 61)

develop the revenue accounting system to do this, we acquired Databasic. We used it to create subsets to test the program that we were developing. Then we loaded the data base from the batch system."

"It saved us a considerable amount of time, even though we had to install Databasic and be trained to use it first," said Cindi Ashford, senior systems analyst responsible for the project. "Consumer Systems spent about a week with us. The first day was used for product installation, the second day for training the programmers that I wanted to have work on it and the rest of the week advising us while we used the product.

"Now with our revenue accounting system, when someone calls up and wants some information, a clerk in the accounting department can sit at a CRT terminal and pull the information up immediately."

Not only has Databasic reduced the amount of time necessary to develop and test applications, but as Bland had hoped, it has made life easier for the systems development staff. With one parameter card the system will unload a data base into a flat file format and vice versa.

"A programmer can use it even on weekends without worrying about whether IMS is up or not or whether the information is current," Bland said.

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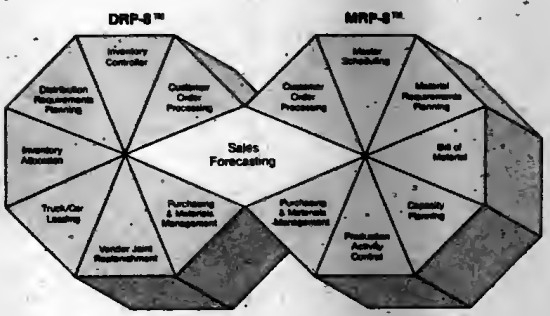

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Runs on System/38

Management Accounting Tool Out

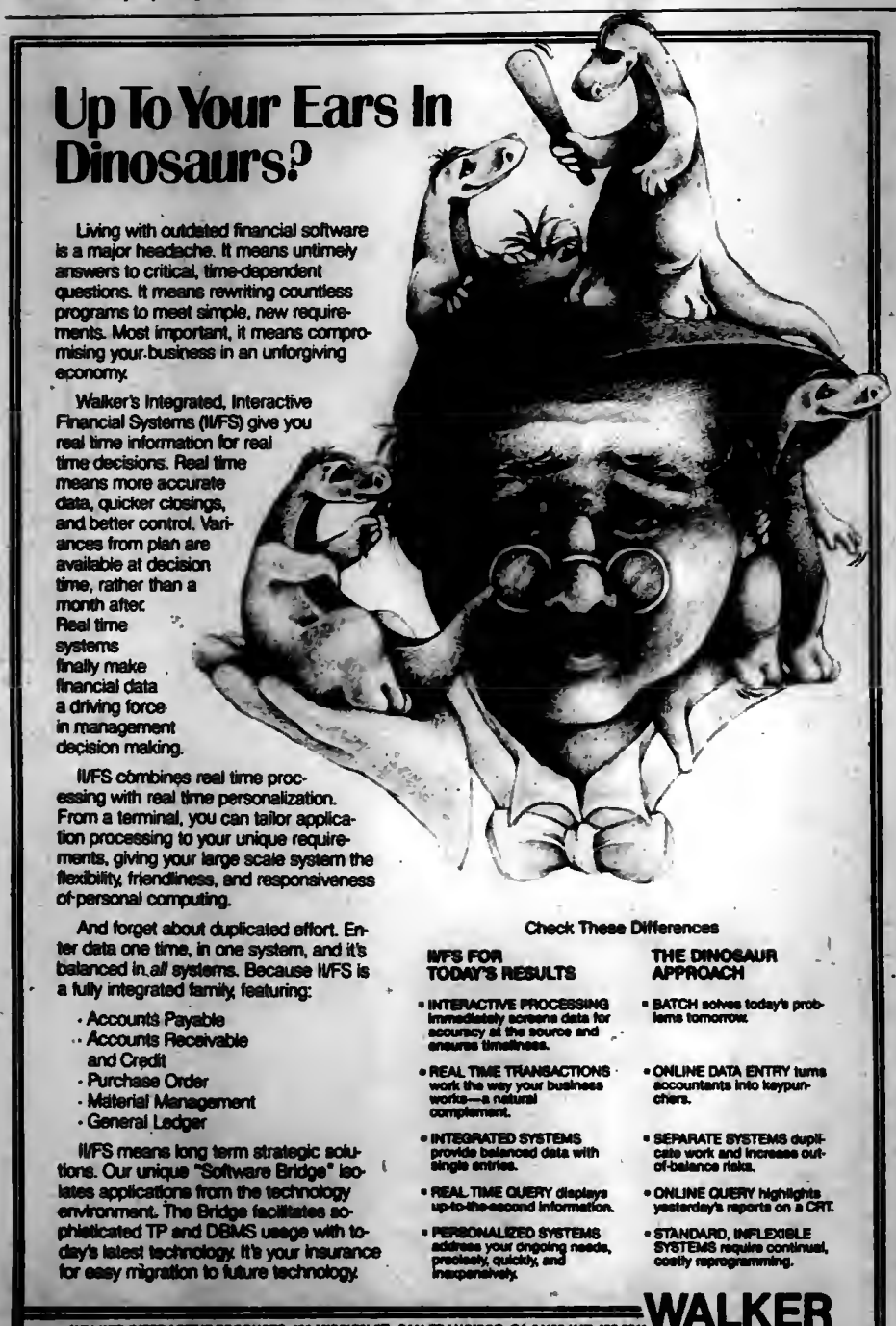
DALLAS — D.H. Dial & Co. has released a multicompany management accounting system designed to run on the IBM System/38.

This General Ledger, Financial Reporting and Budgeting System provides features for the management accountant including a financial report generator, automatic roll-up of accounting data from lower-level to higher-level units within the company's organizational structure and consolidation of multiple companies with elimination of intercompany balances. Accounting data for several years can remain on-line for inquiry and report preparation, according to the vendor.

The system is reportedly menu-driven with help text available for each display screen. Interactive validity checking is provided for all data entered from a workstation, the vendor said. Batch processing programs are also provided to permit validating data supplied from other applications, according to the vendor.

All programs are written in the System/38 Control Programming Language and in RPG-III using structured programming techniques.

The accounting system is available for $9,500 from D.H. Dial at Murray Financial Center, 5550 LBJ Freeway, LB-1, Dallas, Texas 75240.



'Vsam-Assist' Supports 'DF/EF'

CLINTON, Md. — Softworks, Inc. has announced the availability of Release 4.0 of its Vsam backup and recovery package for IBM and plug-compatible mainframes, Vsam-Assist.

Release 4.0 features support for IBM's new Data Facility/Extended Function Integrated Catalog Facility (DF/EF). In addition to providing a high-speed backup, recovery and migration capability for Vsam data sets defined in the DF/EF catalog, this product provides facilities that allow the user to convert Vsam catalogs to DF/EF catalogs or DF/EF catalogs to Vsam catalogs, providing the user with a means of converting his catalogs back to Vsam format if problems are encountered with the DF/EF software, the vendor said.

Release 4.0 reportedly supports all Dasd supported by Vsam, including IBM's 3375s and 3380s. This product costs $4,650, and further details are available from the vendor at 7801 Old Branch Ave., Clinton, Md. 20735.

Clist Compiler Fits IBM's TSO

ANAHEIM, Calif. — Tone Software Corp. has announced a Clist compiler for use under IBM's Time Sharing Option (TSO) or Tone's Tone 3 and Tone 4 teleprocessing monitors.

The product reportedly supports all current releases of IBM's MVS and VS1 operating systems. TSO or Tone 4 are co-requisites under MVS, while Tone 3 is required unver VS1.

Called Procman, the compiler is said to reduce the CPU time required to perform Clist Exec processing. Clists compiled with any Procman reportedly can be link edited and executed from any load library including link list and steplib data sets.

The package also permits users to add built-in functions or control variables to TSO and to specify various levels of security, the company claimed.

An introductory price of $5,500 for a 36-month lease is available from Tone at 1735 S. Brookhurst, Anaheim, Calif. 92804.

'Paws' Update Aids Systems' Modeling

AUSTIN, Texas — Information Research Associates (IRA) has announced Version 2.0 of its Performance Analyst's Workbench System (Paws), a simulation package for the performance modeling of computer systems.

Paws 2.0 now provides capabilities such as the creation and destruction of passive resources such as buffers and pages, enhanced statistical reporting features and better storage management, according to the vendor.

This product is available on all computer systems with an Ansi 1966 Fortran compiler and at least 750K bytes of user (virtual) address space, the vendor said. It costs $16,500, and IRA can be reached at 911 W. 29th St., Austin, Texas 78705.

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GRAHAM MAGNETICS

Adds Transaction Processing System

Prime Offers Data Entry Facility for 50 Series

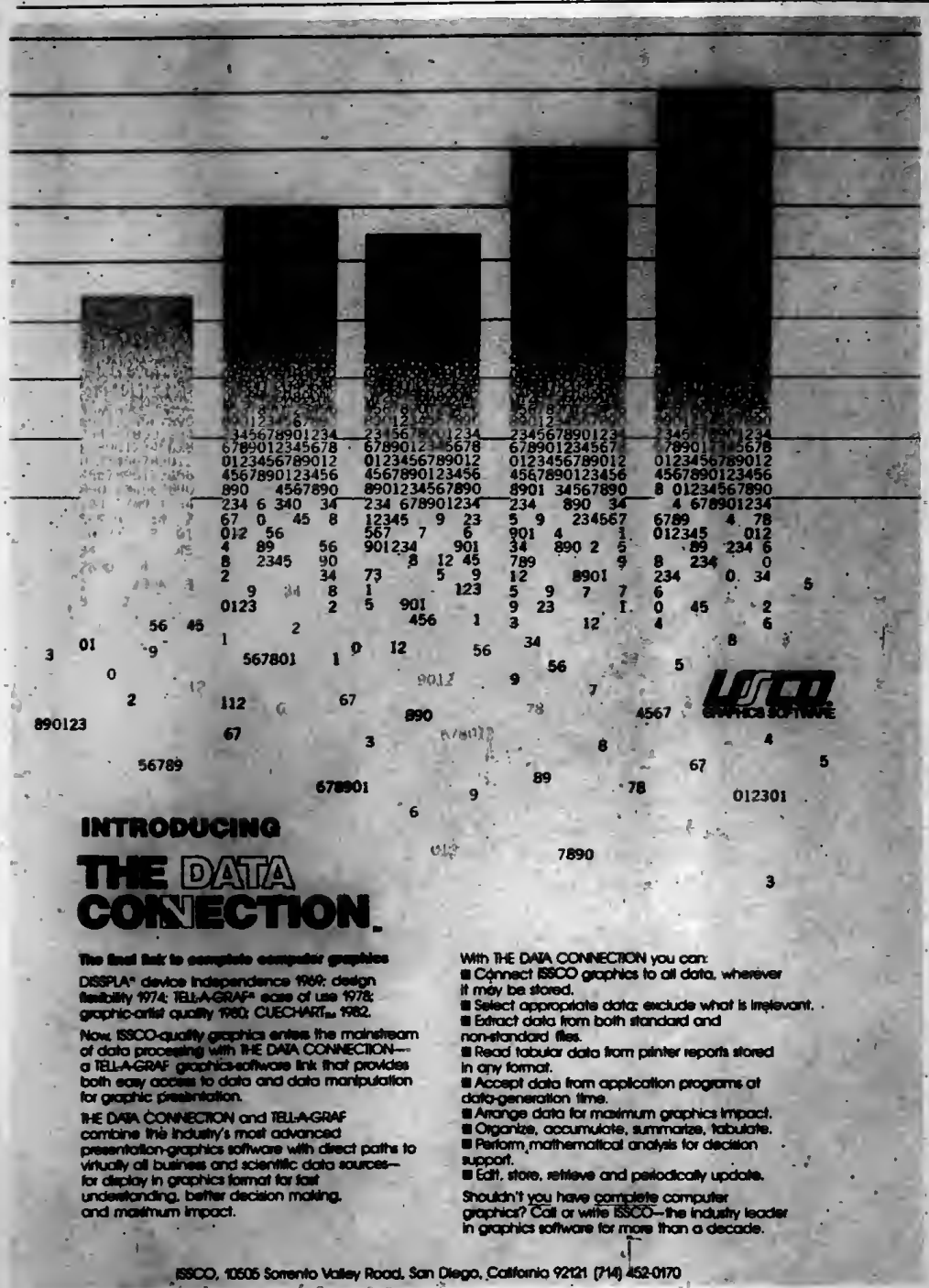
NATICK, Mass. — A comprehensive, general-purpose data entry facility is now available to users of Prime Computer, Inc.'s 32-bit, virtual memory 50 series computers, the company announced. At the same time, Prime announced an on-line transaction processing system for its users. Both systems were developed by Database Systems Corp.

The Entry data entry facility reportedly contains menu-driven interactive development for the creation and maintenance of data entry screens, validation and extraction tables and application file output. Operators can perform data entry, verification and validation functions and administrators can qualify operators, define the operational environment and obtain statistics on system usage, a spokeswoman said.

The Transact on-line transaction processing system reportedly consists of two subsystems. Transaction processors are produced and administered in the Executive Module. Users can build screens and menus, define file and record parameters, associate processing activities with user responses, display or print parameters and audit transactions and recovery files, the spokeswoman said.

The Run module forms the basis for specific transaction processors. It can be linked with processing subroutines written in Cobol, Fortran or PL/I.

The Entry system costs $10,000. The Transact system costs $12,500 with subsequent Run modules priced at $3,000, the spokeswoman said from Prime Park, Natick, Mass. 01760.



'Firm' Aids Accountants

WESTLAKE VILLAGE, Calif. — A business management and accounting program designed to run on a variety of intelligent terminals has been announced by The Software Establishment.

Firm features a menu-driven system said to handle all financial reports, including a payroll cycle, inventory control and others, with eight optional modules also available, according to a spokesman.

Firm is priced at $1,995, including general ledger, accounts receivable and accounts payable and payroll, from The Software Establishment, 31230 Cedar Valley Drive, Westlake Village, Calif. 91361.

'UCC R+' Gets Update

DALLAS — University Computing Co. (UCC) has announced Release 5.1 of its UCC Reliability Plus (UCC R+) hardware reliability analysis system for users of IBM or plug-compatible computers under the OS operating system.

A spokesman said that UCC R+ reports on hardware failure and includes a UCC service that provides monthly comparative reports for over 650 data centers. The enhanced version supports IBM 3375 and 3380 disk drives and the 3081 mainframe and plug-compatible equivalents.

Support for the 32-channel Amdahl Corp. CPU is also provided, according to the spokesman.

Improved teleprocessing reporting allows hardware failure activity to be reported by the access method, the spokesman for the vendor reported.

Also, an enhanced report selection capability reportedly allows reports to be generated selectively for any vendor, device and/or class of devices.

The package costs $16,500 from University Computing Co., which is located at UCC Tower, Exchange Park, Dallas, Texas 75235.

NCR makes Interactive Programming easier from start to finish

NCR's new Interactive Virtual System software now leaps the formidable gap between batch system files and workstations where transactions occur. It introduces greater facility into programming to make your hard pressed programmers more productive than ever before.

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For more information on the Interactive Virtual System and the V-8500-II Data Processing Systems that make it work, just phone 1-800-CALL-NCR. (From Ohio, call 1-800-543-4470).

Or write to Interactive Virtual Systems, NCR Corporation, Box 606, Dayton, Ohio 45401.

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Three Interactive Products Serve IBM, Nixdorf Operating Systems

CULVER CITY, Calif. — Phoenix Computer Corp. has announced three interactive software products for IBM systems running under DOS/VS(E), DOS/MVT, MVS or Edos/VS from Nixdorf Computer Software Co.

Falcon is a data entry facility that reportedly includes an interactive screen format generator, automatic format chaining, field autoduping, Cobol and BAL users exits tied to table look-up, automatic restart/recovery, job accounting reporting, online file maintenance and batch utilities for backup/restore.

Falcon can run as a stand-alone system or as an application task under IBM's CICS/VS; Cullinane Database Systems, Inc.'s IDMS/DC; Applied Data Research, Inc.'s Datacom/DC; Altergo Software, Inc.'s Shadow II; TSI International's Taskmaster; Cincom Systems, Inc.'s Environ/I; and other teleprocessing monitors, a spokesman said. Lease price is $460 to $660 per month.

Echo II is an interactive application development system that is said to allow users to create a series of screens and logically link their display formats to any file, record or field within a record.

Features include a screen format generator, high-level interpretive language, access to any conventional file, mathematical capabilities and access to all library types. The package can run in a stand-alone mode under the company's Condor programming development system or as a task under IBM CICS/VS, IDMS/DC, Datacom/DC, Shadow II, Taskmaster or Environ/I. Lease price is $275 to $375 per month.

The Power Remote Interface Support Module (Prism) reportedly allows users to access Power/VS(E), DOS/MVT Sage or Edos/VS ESF spooler queues from 3270-type terminals or printers.

The package allows queue output to be printed on a 3280 series device or unit record printer, a spokesman said. The user can enter system spooler commands to alter, release or delete reader, list or punch job entries. The package comes with a basic version of the company's Echo interactive procedural language facility.

Prism can run as a stand-alone or as an application task under CICS/VS, IDMS/DC, Datacom/DC, Shadow II, Taskmaster or Environ/I. Monthly lease price is $165 to $230, the spokesman said from 11949 Jefferson Blvd., Culver City, Calif. 90230.

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For years, we, as users ourselves, shared your joys: the pleasure of hearing hardware vendors insist there is no cure, and the delight of dealing with software houses insisting they had the cure-all.

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Triangle Software Company

2651 Kentworth Way, Santa Clara, CA 95051 (408) 727-4391

[1] Documentation available from Triangle Software Company

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Panel-Driven Software Aids Interactive Graphics Generation

NEW YORK — Grafmaster, a software package for presentation graphics that reportedly provides standardized interface panels for interactive generation of simple and sophisticated graphics, was introduced by Precision Visuals, Inc. here last week.

The panel-driven software package can be used on all major manufacturer's graphics output hardware, the vendor said, and can function in four hardware environments. This includes a situation where the alphanumeric and the graphics terminal are the same device, a two-terminal configuration, a terminal and hard-copy output device and a situation where only the alphanumeric terminal is used and the graphics are stored, according to the company.

Precision Visuals said that it is also offering a panel tailoring service to accommodate special user applications or user-interface requirements by using its panel definition language and panel compiler.

Grafmaster will be available in February on VAX computer systems and in April on IBM mainframes for $18,000. More information is available from Precision Visuals, Inc., 6260 Lookout Road, Boulder, Colo., 80301.

'Infoplex' Facility Interfaces To Postal Service's Ecom

COLUMBUS, Ohio — Compuserve Network Services has extended its Infoplex electronic mail facility to include an interface to the U.S. Postal Service's Electronic Computer-Originated Mail (Ecom) service. Ecom offers two-day delivery of mail anywhere in the U.S.

The Ecom service has recently been made available to small users for sending individual letters or documents, a company spokesman said. The Infoplex facility reportedly offers generation or selection of mailing lists, allowing users to send a small numbers of letters economically. Compuserve's value-added communications network currently serves 130 cities in the U.S. and Canada.

The spokesman said the Infoplex facility is a transaction-based service that costs 80 cents for the first location and 35 cents for each additional location/message. The Ecom facility costs 85 cents for one letter to one addressee with volume discounts provided. Compuserve is located at 5000 Arlington Centre Blvd., Columbus, Ohio 43220.

'Topo-Graph' Fits VAX-11s

HOUSTON — An interactive contouring, gridding and grid processing program for Digital Equipment Corp. VAX-11 minicomputers running under VMS has been announced by Greg Passmore, Inc.

Topo-Graph handles faulting and produces publication-quality contour, isometric or color-attribute displays from randomly spaced control points. It features an interactive grid editor that allows modifications to specific grid cells, the vendor said. An image-processing library may be used for grid sharpening or smoothing, while interactive grid editing requires a raster multicolor tone display, the company said.

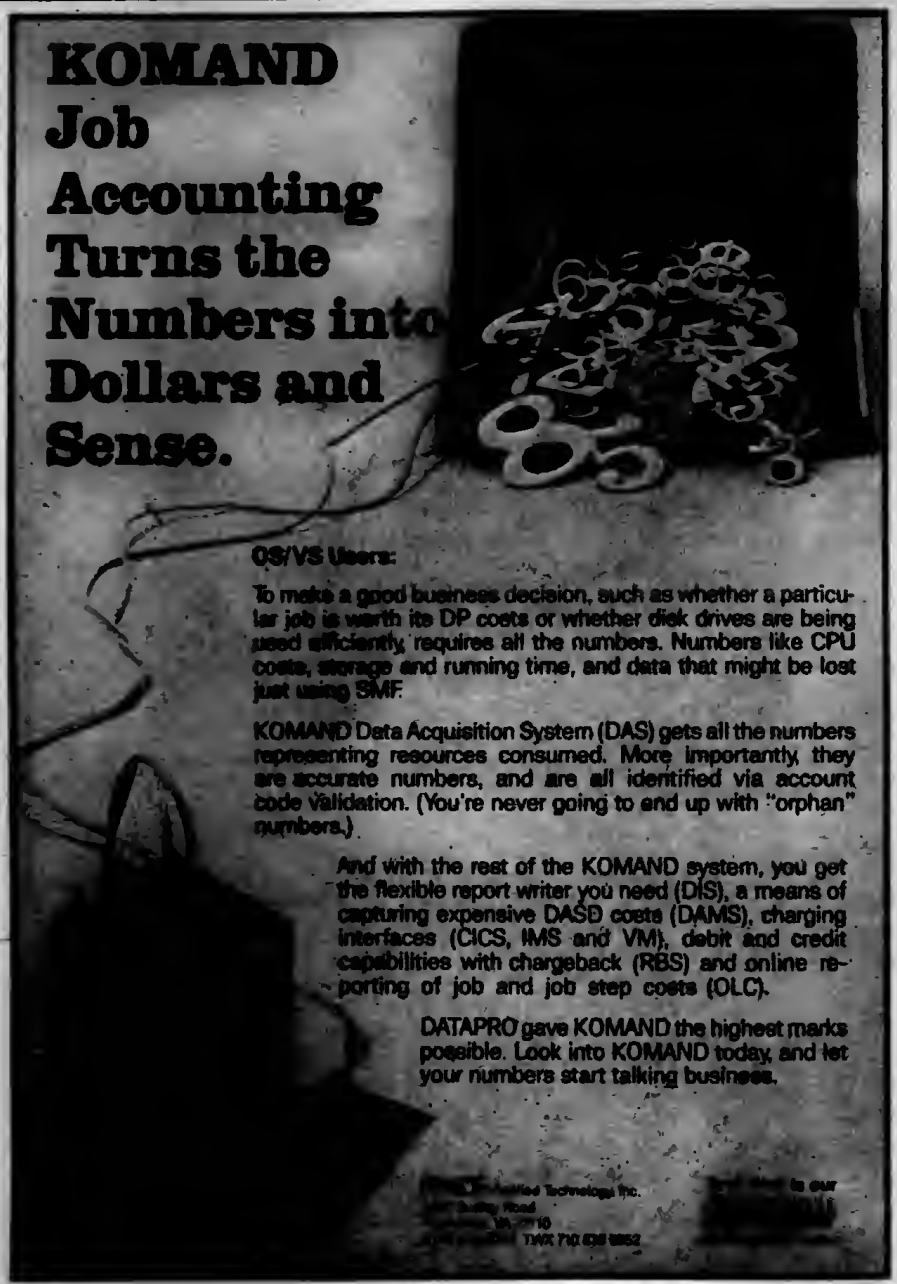
Topo-Graph is priced at $13,000 per CPU from Greg Passmore, Inc., 910 Ashford Pkwy., Houston, Texas 77077.

System/38 Gets Retail Package

EAST BRUNSWICK, N.J. — A retail software package comprising 12 modules has been announced by Harris Information Systems, Inc. for users of the IBM System/38.

The modules include: sales auditing; classification merchandising; sales productivity and payroll planning; purchase order management; merchandise receiving, ticketing and distribution; accounts payable and vendor analysis; merchandise planning; open to buy; unit control inventory system; accounts receivable, billing and collection; general ledger; and payroll and personnel. Modules may be purchased in any combination and added without redundant processing steps, a spokesman said.

Each module costs between $8,000 and $12,000, the spokesman said from 760 Highway 18, East Brunswick, N.J. 08816.



CDC Analysis and Design Package Targets Architects, Engineers

MINNEAPOLIS — Control Data Corp. has announced the availability of Staad-III, an analysis and design software system for architects and engineers that meets the standards of the American Institute of Steel Construction (AISC) and the American Concrete Institute.

Staad-III is available through CDC's worldwide Cybernet data services network in both batch and interactive modes on its NOS 175 and NOS 176 computing services.

With Staad-III, engineers and architects reportedly can evaluate all types of two- and three-dimensional framed structures, including plans, space frames, truss and floor types in terms of standards. Analysis and design tasks can be accomplished on a single execution of the program. The product contains built-in units of English, Systems International units and metric units, according to the vendor. It also includes steel tables from the AISC-80 manual.

Users can specify a table of shapes, angles, channels or beams, and the program will automatically select the required properties to do the analysis and design, the vendor reported.

Pricing is based on the job, connect time and volume on the time-share network.

Further details are available from CDC at P.O. Box O, Minneapolis, Minn. 55440.

System/34 Gets Search Service

NEW YORK — Mincron Corp., publisher of the Pac-Finder IBM System/34 software directory, has announced a search service for System/34 software.

Search/34 is said to provide information on available packages based on the user's particular requests, so the user receives and pays for only the software information currently needed, the vendor claimed.

Printed findings are said to be delivered to the user within two days. Descriptions of software include vendor information, number of installations, date of first installation, source language, pricing and a detailed description.

A search for available software in one area costs $35 from the firm at Suite 2809, 350 Fifth Ave., New York, N.Y. 10118.

Conversion Aid Targets IBM

TORONTO, Ont. — A utility program said to help the conversion of in-house modified packages such as IBM's Manufacturing Accounting and Production Information Control System from the IBM System/34 to the System/38 and to help with the upgrade of modified programs when a new release is available has been announced by Pics Ltd.

The Compare Utility compares the source code of RPG programs, as well as screen formats and message members. After the comparison is done, the program prints the lines of code found different in the old and new versions of the programs.

The utility costs $250 for the System/34 version. Pics is located at 4 Sugar Millway, Willowdale (Toronto), Ontario, Canada M2L 1R4.

Law Firms on DG Commercial Line Get Financial Control Package

LIVERPOOL, N.Y. — The Wilson Systems Group has announced an application software package for law firms using the Data General Corp. Commercial Systems line of computers.

The Work-In-Process/Financial Control system reportedly is an interactive, modular package that can be implemented on any size Commercial System computer.

The system is said to include modules for time accounting/accounts receivable, utilization reports, billing and realization analysis, conflict of interest, docket control and investment in client services reports.

Interfaces are included for accounts payable, payroll, general ledger and word processing, a spokesman said.

Prices for the system start at $30,640. The company is located at Suite 212, 290 Elwood Davis Road, Liverpool, N.Y. 13088.

Utility Compresses, Encrypts Data

DUNBARTON, N.H. — A simultaneous data compression and encryption utility for IBM DOS/VS or OS systems users has been announced by Intersystems.

The utility reportedly eliminates blanks in order to compress any type of source data into a format suitable for variable-length record processing. Keys at the beginning of the data may be excluded from compression and encryption, a spokesman said.

Records may also be encrypted without simultaneous compression. The encryption key may contain up to 32,767 characters.

The one-time license fee is $850, the spokesman said from Story Hill Road, Dunbarton, N.H. 03045.

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There will be something for everyone during these three days of conference and exposition at The Rivergate in New Orleans. Exposition hours are 10 a.m. to 4 p.m. on Monday, January 31 and Tuesday, February 1 and from 10 a.m. to 2:30 p.m. on Wednesday, February 2.

Lunch is complimentary each day to registered attendees, right in the hall, so you can check out new product ideas, meet old friends and renew contacts on the spot. Or, maximize your on-site idea time — jog early and meet for 7:30 a.m. "Early Bird Rap Sessions" which include coffee and pastry.

Register now by calling Louise Myerow, Registration Manager **toll free 800-225-4698** (617-879-0700 in Mass.). For exhibit information, call or write Judie McDaid, Hajar Associates, 280 Hillside Ave., Needham Heights, MA 02194, 617-444-3946.

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Drug Reference Aids Hospitals

ORLANDO, Fla. — An automated pharmaceutical reference guide covering more than 9,000 drugs commonly used by hospitals has been created by Dynamic Control Corp.

Designed to be used with the firm's Pharmacy Management System (PMS) that runs on the IBM System/34 and /38, the clinical data base reportedly is the first system of its kind to include reference data explaining the basis for any warning signals.

PMS costs $50,000, with an implementation fee of $10,000. The data base costs $3,400/year with quarterly updates costing $5,000/year, a spokeswoman said from 1311 S. Semoran Blvd., Orlando, Fla. 32792.

'P-Stat' Fits Honeywell Units

PRINCETON, N.J. — P-Stat, Inc. has announced the availability of its P-Stat package on the Honeywell, Inc. 16- and 32-bit DPS 6 minicomputer, as well as on Honeywell's Level 6 systems.

P-Stat is said to offer a combination of statistical procedures, data management features and flexible data display capabilities within a single program, running either in conversational or batch modes from the same module.

P-Stat is priced at $15,000 or can be leased for $6,000/year with $3,000 annual renewals from P-Stat, P.O. Box 285, Princeton, N.J. 08540.

Geisco T/S Net Includes 'SSS'

ROCKVILLE, Md. — K & E Gamatron Corp., under an agreement with General Electric Information Services Co. (Geisco), will be making its Sprinkler System Software (SSS) available worldwide through the Geisco time-share computing network.

This product line includes software solutions for the preliminary design of hydraulically calculated fire protection sprinkler systems and another that provides optimal pipe sizes for grid tree and loop systems.

Pricing is based on volume and connect time, a Geisco spokeswoman said. Further details are available from Geisco at 401 N. Washington St., Rockville, Md. 20850.

'Pest Control' Introduced

HOUSTON — Communication Controls, Inc. has announced a series of software products for the IBM System 23/Datamaster.

The Pest Control system for exterminators reportedly features tracking and renewal notification for all customers of a multiroute company. Inquiry and reporting ability is available for customer work order history and accounts receivable, a spokesman said.

Other packages offered include general ledger, accounts payable, accounts receivable, payroll, fixed assets and client accounting.

The Pest Control package costs $895 for the diskette and $1,895 for the disk version. All other packages cost $895 for diskette and $1,395 for disk. Diskette demonstrations are available for $125 with the full demonstration fee applied toward the purchase, the spokesman said from 6200 Gulf Freeway No. 205A, Houston, Texas 77023.

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'CPMS' Runs On System/23

MIAMI — Syscom, Inc. has announced a commercial property management package for the IBM System/23.

The Commercial Property Management System (CPMS) was designed to handle the billing and processing of tenants that lease space in various properties that are owned by various owners, according to the vendor. It includes an accounts receivable system, which provides a history of information processed through the system, and a general ledger system is optional.

The CPMS is priced at $4,900, and the general ledger option is $1,000. Further details are available from Syscom at Suite 250, 10300 Sunset Drive, Miami, Fla. 33173.

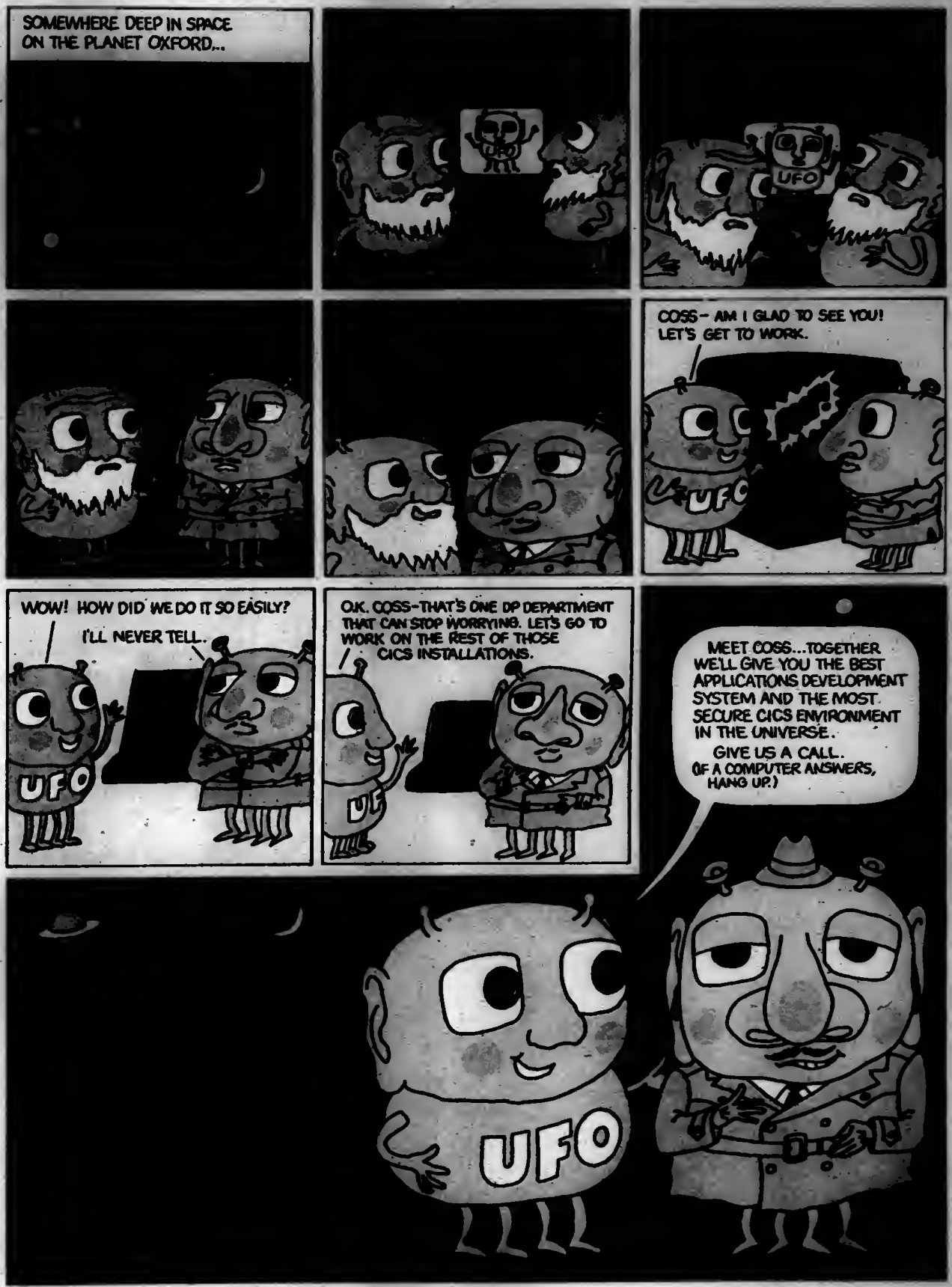
Document Tools Target HP 3000

KELLER, Texas — Related Computer Technology has unveiled two program translators for users of Hewlett-Packard Co., 3000 computers.

BAD-3000 for analysis of Basic programs and CAD-3000 for Cobol analysis reportedly generate detailed and generalized flow charts of existing programs. Available output menus include: a step-by-step description of the program under study; flow charts of all or part of the program; a printed listing of the complete program; a cross-reference list of all variables and statements in the program; and an updated data dictionary said to maintain current information of all programs in the system.

An option called Morpheus sets periodic documentation of the program library to make updated versions of all programs available.

Either package costs $2,000 from Related Computer Technology, through P.O. Box 523, 154 S. Main, Keller, Texas 76248.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Fortran 77 Compiler Bows For Prime Computer Users

SAN RAFAEL, Calif. — A Fortran 77 compiler for users of Prime Computer, Inc. systems has been announced by Mitchell Associates.

Developed in the UK, The FTN 77 provides fast compilation speed, language compatibility with existing Prime Fortran compilers and a range of diagnostic and development facilities said to surpass those usually available to the Fortran programmer, the company claimed.

The FTN 77 can compile more than 9,000 lines of source code per minute on Prime's P750 CPU, making only one pass through the source file, while occupying two segments of shared virtual memory, including all table space, an automatic loader and a shared runtime library for load-to-go support, the vendor said.

The FTN Fortran compiler is available for $4,000 per year with $300 annual renewals, from Mitchell Associates, 30 Roundtree Blvd., San Rafael, Calif. 94903.

'Atlas' Targets Travel Firms

PLANTATION, Fla. — A package designed for retail travel agencies using IBM System/23 Datamaster has been announced by PM Software, Inc.

Atlas interfaces with airline travel reservation systems and provides back-office accounting functions, with accounting data read from the reservation systems and posted automatically to accounting files, the company said. The accounting module provides standard office accounting applications, including tracking of sales, cash receipts, accounts receivable, payroll, general ledger and mailing list management, the vendor claimed.

The price of Atlas, including the interface and accounting module, is $8,400 from PM Software, 7061 N.W. 1S St., Plantation, Fla. 33313.

'Autogen' Tool Fits MSI/85

COSTA MESA, Calif. — A software development tool that loads directly into the new MSI/85 handheld computer from MSI Data Corp. has been announced by the same company.

The tool, a version of the vendor's Autogen package, reportedly enables users to create a data collection program within the unit itself. Prompts appear in the liquid-crystal display of the MSI/85 to ask the operator for details concerning specific data collection needs. Autogen then generates a program to meet those needs.

Autogen for the MSI/85 costs $650, the vendor said from 340 Fischer Ave., Costa Mesa, Calif. 92626.

Fortran Library Updated For HP 1000

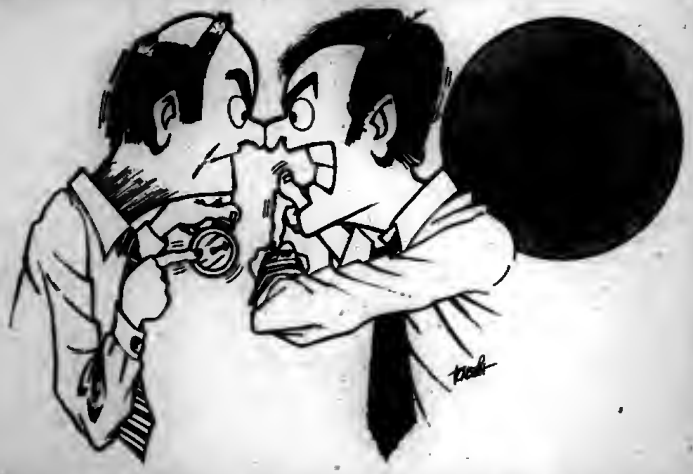
HOUSTON — IMSL, Inc. has released Edition 9 of its Library of Fortran subroutines for the scientifically oriented Hewlett-Packard Co. 1000 series.

The library of more than 540 subroutines reportedly covers the broad range of mathematics and applied statistics, including such areas as linear and nonlinear equations, eigensystem analysis, interpolation, differential equations, analysis of variance and forecasting.

Annual subscription rates for the HP 1000 IMSL Library are $2,000 initially and $1,500/year for renewals, with 40% discounts available to universities.

IMSL is located at the Sixth Floor, NBC Building, 7500 Bellaire Blvd., Houston, Texas 77036.

Disagreements about 3270 Response Time?



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Backs Structured Design

Analysis Methodology Out

PLANO, Texas — A new data analysis methodology to support top-down structured design and business systems planning has been released here by C.A.C.I., Inc.

This analysis methodology addresses all elements relevant to entity analysis and modeling, functional modeling, functional networks and data normalization for the construction of both data base and non-data base information and decision support systems, according to the company. This methodology has reportedly been used to determine the suitability of application packages, application development strategies, evaluation of data base packages, system conversions, distributed networks, feasibility studies, data control systems and others.

A description of the methodology is available for $35 from C.A.C.I. at Suite 193, 2701-C W. 15th, Plano, Texas 75075.

Free Software Fits Komstar

ROCHESTER, N.Y. — A free software package for Eastman Kodak Co.'s Komstar microimage processors is said to provide commonality between 16mm roll film and 105mm microfiche.

Starlink four is said to simplify the use of computer output microfilm from both a programming and computer operations standpoint.

For programmers, the commonality facilitates setting up and entering job parameters and description because both formats have identical parameters, according to the vendor. As for operations, a new bar code feature automatically controls 105mm duplication and collation processes, the vendor said.

Existing Komstar users will receive Starlink four free of charge, while new customers will automatically receive the software with their Komstar equipment. Kodak is headquartered at 343 State St., Rochester, N.Y. 14650.

Builders Get ORR System

MINNEAPOLIS — An interactive software service that includes a data base of cost factors and building case histories for estimating construction costs is available through Control Data Corp.'s Cybernet Services.

The ORR System — named after Bill Orr, president of the software developer, Cost Systems Engineers, Inc. of Fort Worth, Texas — is said to accept a wide variety of input, including the cost estimator's knowledge of a particular project.

Data base cost information, including trade information, is updated quarterly for 100 cities worldwide. Case histories of more than 2,000 construction projects and the costs of approximately 65,000 parts and materials items are included in the data base.

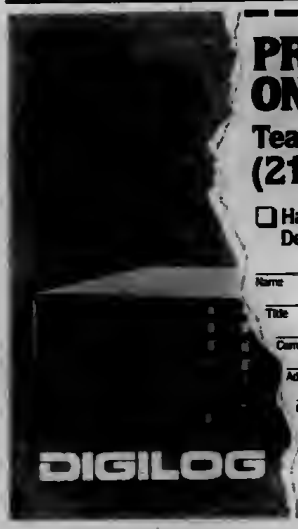
There is no initial fee and the cost for ORR is on an as-used basis. CDC can be reached through P.O. Box O, Minneapolis, Minn. 55440.

On-Line Personnel Program Aids Firms Using HP 3000

TAMPA, Fla. — An on-line program package designed for the Hewlett-Packard Co. HP 3000 series computers to aid businesses with personnel functions has been announced by Collier-Jackson, Inc.

PRS/3000 maintains and retrieves personnel information, current and historical job-related data, skills inventory and attendance information, the company said. The package facilitates personnel administration with several tools, including applicant listings, employee status notice, federal Occupational Safety and Health Administration and Equal Economic Opportunity reports.

PRS/3000 is priced at $24,000 from Collier-Jackson, Inc., 5404 Hoover Blvd., Tampa, Fla. 33614.



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Micronotes

Personal Systems Technology, Inc. has introduced a full-screen editor for the IBM Personal Computer. This product, PCedit, reportedly features memory-speed screen updates, while providing full use of all functions and editing keys on the IBM keyboard. It is priced at under $100, the vendor said from 22957 La Cadena, Laguna Fill, Calif. 92653.

A dual product that allows the IBM Personal Computer to be used in conjunction with General Electric Information Services Co.'s (Geisco) Mark III remote computing service has been announced by Accounting Systems, Ltd. Ascom includes communications and accounting packages that link the Personal Computer to the Geisco network. The communications package costs $195, and the accounting application package costs $295 through P.O. Box 1488, Boise, Idaho 83701.

A compression utility said to allow users to atore more than twice as much English text on any type of disk has been announced by Keele Tech, Inc.

The Compressed Library Interchange Program (Clip) compression utility allows Ascii files in English to be reduced 40% in the same amount of time it takes to copy a disk, while numerical data can be compressed 50% and foreign and computer languages to between 60% and 80% of normal, the company claimed.

The utility is available for a wide range of Digital Research, Inc. CP/M users and includes a separate utility for transferring files through a serial port, the vendor said.

The Clip compression utility is priced at $135 from Keele Tech, 12 Arlen Road, Westport, Conn. 06880.

National Semiconductor Corp. (NSC) has introduced Starplex II Pascal, a high-level language compiler designed for the firm's proprietary Starplex II Development Systems. Available in two versions, Pascal can perform code generation for Intel Corp. 8085 and NSC 800 microprocessors. Starplex II Pascal costs $2,500 from the vendor at 2900 Semiconductor Drive, Santa Clara, Calif. 95051.

Bit Software, Inc. has introduced a Forms Designer package for IBM Personal Computers with 128K bytes of memory, PC-DOS, IBM Pascal or Fortran and two disks. Designed to facilitate design and layout of forma and to create, store and update a data file based on the forms, the Forma Designer costs $275 plus $75 for its Data Entry program. Bit Software can be reached through P.O. Box 619, 1048 Nicklaus Ave., Milpitas, Calif. 95035.

Digital Research, Inc.'s MP/M and CP/M application software running on Altos Computer Systems, Inc.'a ZHog, Inc. Z80-based 8-bit microcomputers can now be transported to Altos' Intel Corp. 8086-based machines running auch 16-bit opersting systems as CP/M-86, MP/M-86, Phase One Systems, Inc.'a Oasis-16 and Bell Laborstories' Xenix/Unix. The Xenix file transfer program is available free on diskette for copying from Altos headquarters at 2360 Bering Drive, San Jose, Calif. 95131.

Visual Horizons has announced Computer Slide Express, a transaction-based service said to turn any Apple Computer, Inc. micro into an art-generating machine. With the service, Apple users can convert computerized charts, designs, graphs and graphics to 35mm color slides, standard size or enlarged color or black and white prints or overhead transparencies, the company claimed. Data can be transmitted over telephone line or mailed to the company via a floppy desk. Further information can be obtained from Visual Horizona, 180 Metro Park, Rochester, N.Y. 14623.

For users of the IBM Personal Computer, Persoft, Inc. has unveiled a full-featured emulator for the Digital Equipment Corp. VT100 series terminals. The TE100 emulates all features of VT 100, 101 or 102 terminals, the company said. The TE100 is priced at $125 from Persoft, 2186 U.S. Highway 51, Stoughton, Wisc. 53589.

Westico, Inc. has unveiled Metatype, a word processor for microcomputers running under Digital Research, Inc.'a CP/M. Metatype features true proportional spacing and easily programmed character widths, as well as margin justification either by adding extra apace between words or uniformly whenever spaces between words exceed a programmed maximum size, the company said. Correct line breaks are shown on the screen, and deletion recovery is provided by a series of safeguards, the vendor claimed. Metatype is priced at $360 from Westico, 25 Van Zant St., Norwalk, Conn. 06855.

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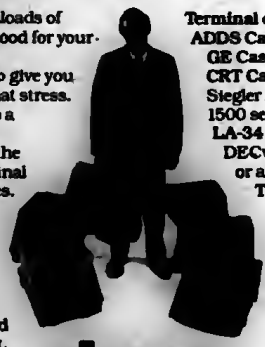

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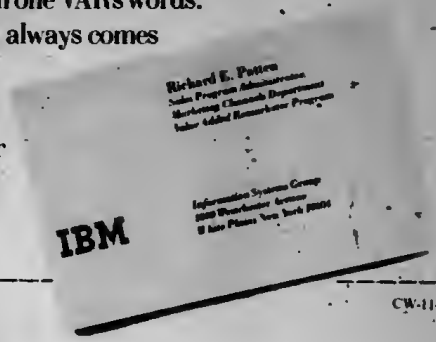

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THE RISING TIDE OF INFO

By Joseph S. Mallory

At a time of momentous technological change, strategic MIS management takes on new importance. The author defines seven critical success factors to help position the information executive for the vital role he should play in shaping his corporation's future.

RMATION MANAGEMENT

"There is a tide in the affairs of men,
Which taken at the flood, leads on to fortune.
On such a full sea are we now afloat,
And we must take the current when it serves,
Or lose our ventures."

—William Shakespeare
Julius Caesar

Computers, telecommunications and related technologies are revolutionizing the way corporations conduct business. Consider the impact of personal computers, retail point-of-sale terminals, automated teller machines and robotics.

Rapid advances in information technologies are yielding computers with instruction times measured in picoseconds (trillionths of a second), video disks with storage capacities of 100 billion characters, laser communications channels capable of carrying several hundred thousand voice conversations, powerful desktop computers costing only a few hundred dollars and a proliferation of special-purpose terminals and workstations designed to meet business needs.

We can anticipate even more momentous changes in the next five to 10 years.

As these developments unfold, strategic management is taking on new importance, and information technology is now widely recognized as an inseparable component of strategic thinking. In this environment, the top information technology executive assumes a new stature — as a key contributor in setting strategic directions and as a guardian against overly ambitious programs.

Unfortunately, many information technology executives are not well positioned to fulfill this expanded role. Corporate management is reluctant to place emphasis on the new while the old doesn't work yet, and too many companies are still largely dissatisfied with past results. They perceive a marginal return on their systems investments, and the promises of higher productivity, better service levels and more informed decision-making have not materialized. Moreover, new problems and operating constraints have accompanied an increasing dependence upon computers and technical personnel who are difficult to manage.

Thus, there is a disturbing gap between technology-driven opportunity and our ability to use the technology to achieve practical business results. And while the gap has existed for many years, it is widening as the technological pace quickens.

Soaring energy and raw material costs, shrinking budgets, high interest rates and unpredictable inflation — these are today's business realities. Information technology is one of the few factors management can leverage in this adverse economic climate. Bridging the gap will be fundamental to many companies' survival.

Critical Success Factors

There are seven critical success factors that tend to differentiate the winners from the losers in the information technology arena:

1. Selecting a clear direction.
2. Designing the right systems.
3. Managing systems development.
4. Building a strong staff.
5. Achieving high productivity and service levels.
6. Communicating with users and management.
7. Controlling the "information technology revolution."

While books have been written on each of these subjects, it may be useful to summarize the fundamentals that are critical to positioning the top information technology executive for the vital role he should play in shaping his corporation's future.

1. Selecting a clear direction.

Corporate managements have been quick to recognize the fundamental logic behind portfolio management, that is, the allocation of resources among existing business units and potential ac-

IN DEPTH

quisitions to achieve strategic objectives. There is a need to apply similar thinking to the use of information technology, where limited resources are available to complete numerous projects. Systems project backlogs exceed two years for most corporations.

There are numerous methodologies, such as IBM's Business Systems Planning (BSP) and Business Information Control System (Bics), for developing systems plans, but the basic objectives are simple. The plan should be driven by business needs, be easy to read and understand and have full top-management support. Where these elements are missing, it is not uncommon to find organizations with millions of dollars in excess inventory or key systems that don't work while critical resources are consumed by experiments with new technologies or by converting working systems to more elegant software.

While most information technology departments are aware of the need for a clear, longer range direction, very few good plans have emerged. Common problems include insufficient understanding of business needs, failure to quantify benefits and to nail down commitments, poor presentation of results, an unwillingness to make the investments required for proper planning and abdication for lack of a total corporatewide business strategy.

2. Designing the right systems.

Technological advances over the past 10 to 12 years have provided all the capabilities required to build systems that work. Nevertheless, there are still too many disappointing new systems. For example, sophisticated stock replenishment systems in retailing often have failed because of information time lags and other inaccuracies in the data base. Point-of-sale registers, in-store computers, telecommunications facilities and on-line systems software provide the tools for largely eliminating these problems and significantly impacting the bottom line. Similarly, the elements needed to build effective systems in other industries are available where the skills can be found to apply them effectively.

If the tools are available with existing technologies, then why are there so many mediocre systems? Why is it that in so many cases, even new systems 1) don't fully reflect user requirements, 2) can't be installed without serious disruptions or 3) evoke resistance from users reluctant to change?

In a nutshell, why do professional systems developers tend to build the wrong systems — particularly in highly centralized environments?

Clearly, the probability of a successful project can be enhanced greatly in many cases by:

1. Assigning a qualified user to lead the project or at least building users formally into the project organization.
2. Investing more heavily in the design phases of a project.
3. Accelerating the development of employees with a

IN DEPTH

solid blend of systems, operations and business know-how.

When fully "qualified" users are not available, use of outside consultants or various techniques (such as prototyping) can minimize the risk of a wasted investment.

3. Managing systems development.

Mismanagement of the systems development process has been a major roadblock to achieving systems-dependent corporate objectives. Many well-conceived projects have failed to live up to their promise because of massive overruns, disruptive implementations and disappointingly short system life cycles. Generally, the reasons can be traced to three areas:

- Poor initial time and cost estimates.
- Inexperienced project management.
- Lack of involvement by top management.

Assuming that a system concept is sound, it is not difficult to estimate time and cost for design, programming and documentation activities. The difficulties are encountered in testing, which typically consumes about 50% of development time and costs. Techniques such as structured design, structured programming and structured walk-throughs can minimize the cost and uncertainty inherent in the testing process.

Many software companies have mastered these techniques to the extent that there is no longer much hesitancy to enter into fixed-cost contracts for developing major systems.

Perhaps even more important, modern system development techniques can simplify the task of maintaining a new system once it is operational. They simplify the job of locating the source of a problem, pinpointing the proper location for an enhancement and testing the new code. This means higher productivity and longer system life cycles. While many systems professionals think in terms of five-year system life cycles, well-designed and properly maintained systems can easily last 10 to 15 years in a reasonably stable business environment.

The importance of top management's role in the systems development process is generally underestimated, and most executives are guilty of withdrawing from key projects once they reach the "technical" stage. But consider the most common reasons for project failures:

- Underqualified project managers.
- Lack of fully committed resources.
- Lack of user involvement and commitment.
- Inappropriate choice of a time to implement.
- Unstable systems requirements.
- Personnel turnover.

Careful planning and timely detection of these problems requires business judgment — not technical expertise. And, if additional help or other changes are warranted, top management can frequently detect the need before the damage becomes too severe and approve corrective measures

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IN DEPTH

before valuable time is lost.

4. Building a strong staff.

Nearly every major data processing organization is experiencing some difficulty in marshaling adequate talent. For example, a survey of 289 firms in the U.S. and Canada showed a vacancy rate of 17% for analysts/programmers and 27% for data communications positions. Furthermore, turnover was running at about 28% (see "That Old Bugaboo, Turnover," *Datamation*, October 1979).

'The challenge is to attract and motivate outstanding people in a field where the notion that data processing is the "road to the top" has been largely abandoned.'

Viewing the situation another way, the IBM user group Share projects a need for 640,000 computer specialists by 1985. However, the U.S. Department of Labor forecasts an availability of only 476,000. So the situation is not likely to improve — rather it will worsen as demand, stimulated by a proliferation of mini- and microcomputers, grows faster than the supply.

The importance of building a strong staff is underscored by the results of numerous experiments and observations that suggest that one really able programmer may be worth 15 to 25 average programmers — and that performance is not necessarily related to years of experience (see "Exploratory Experimental Studies Comparing On-Line and Off-Line Programming Performance," *Communications of the ACM*, January 1968).

Thus, the challenge is to attract and motivate outstanding people in a field where the notion that data processing is the "road to the top" has been largely abandoned.

While good staff development methodologies may vary in form, they all include four major elements:

- Well-defined career paths outlining the short- and long-range alternatives open to each employee.
- A skills index defining in depth the requirements for progressing along each career path.
- A training program linked to the skills index and identifying courses, seminars, reading materials and so on that can help the employee attain a required skill level.
- An appraisal process that rewards desired performance and draws on the above to structure customized individual development programs.

Building a strong staff is also closely linked to several other success factors. For example, good staff members are much more likely to be attracted to an organization with a well-defined systems direction, a track record for building successful systems and a proven systems development methodology.

5. Achieving high productivity and service levels.

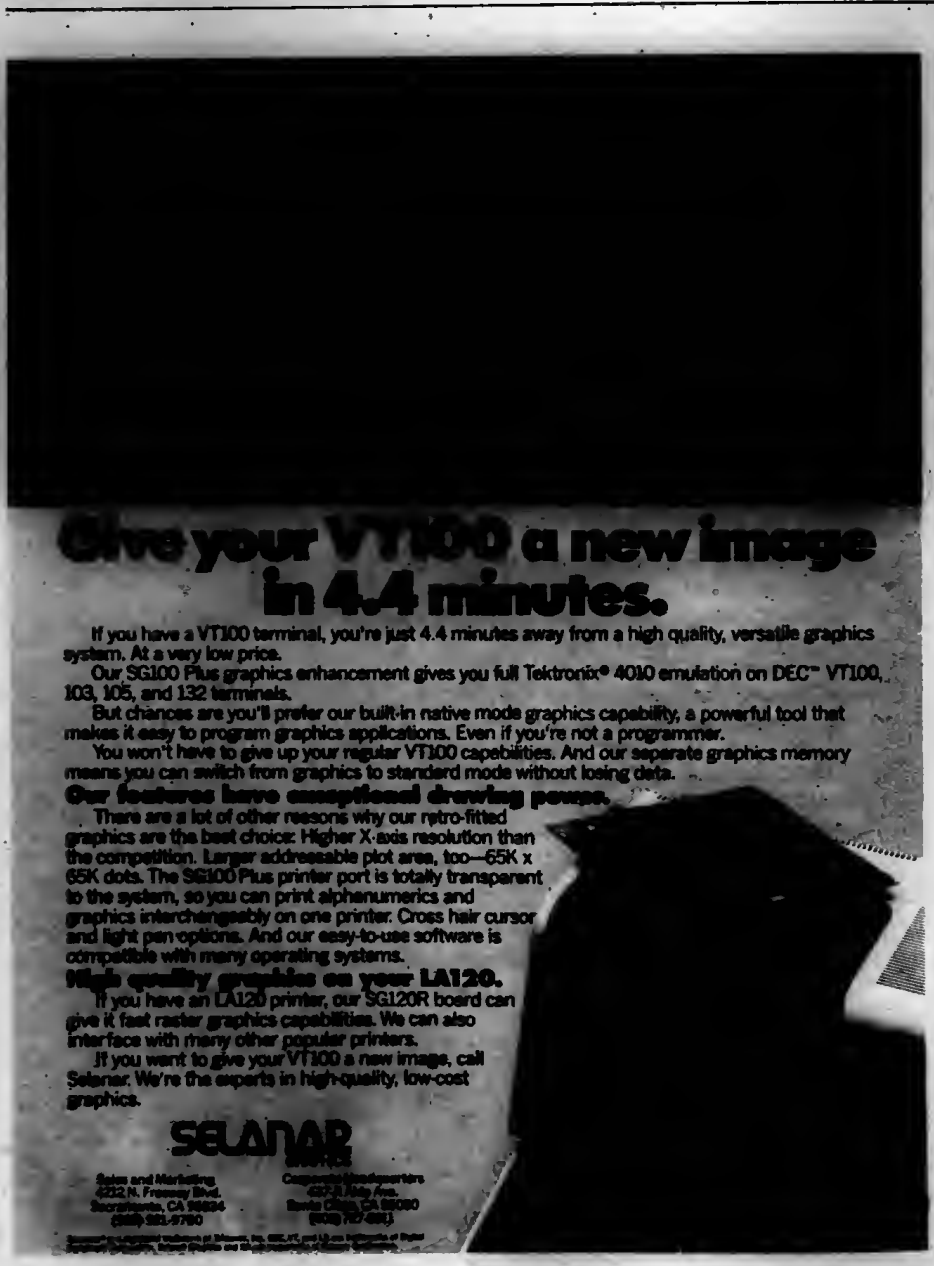
The enormous backlogs of systems projects and the worsening shortage of systems professionals create a situation in which productivity is a primary factor in differentiating the better DP organizations, that is, they get more done per dollar expended.

Many organizations can achieve short-term productivity gains of more than 100% by the relatively simple application of some basic principles:

- Make sure each project is justified.
- Monitor each project at regular intervals.
- Track performance against promise dates.
- Link individual performance to the appraisal process.
- Batch maintenance jobs to minimize disruption.
- Install sound quality-control procedures.
- Provide analysts/programmers with adequate administrative support.

There are more advanced (but not difficult) techniques that can work

(Continued on In Depth/8)



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How Do You Rate?

Any organization involved in information technology that can give itself high marks in each of the seven critical areas named in this article is ready for the challenges and expanded responsibilities of the 1980s. Conversely, low marks in any of those areas may severely constrain the growth of information technology professionals and the organizations they serve.

What actions are called for? While the answer varies, most departments concentrating on information technology need to follow three steps:

1. Complete a thorough self-diagnosis. Assess departmentwide performance and capabilities using the critical success factors outlined here as a guide. Be sure the results are objective and compiled by respected professionals who understand the business, the industry and the leading competitors. Then share the results with top management.

2. Design and carry out an improvement program. Clean up current systems, install improved practices, upgrade resources and provide a path to the future "model" of business systems and operations.

3. Elevate the role of information technology. Take the initiative to develop and present new concepts and ideas. For example:

- How can we use information technology to achieve competitive advantages? Where are we vulnerable if we don't?
- What new products or businesses should we consider to leverage our strengths in information technology or compensate for our weaknesses?
- What should we do now to shorten the lead time needed to exploit future business opportunities?

For one medium-size health insurer, the diagnostic examination (Step 1) showed excessive costs, one major "runaway" project, outmoded equipment and software, deficient financial systems, low service levels, high turnover and a poor reputation.

An improved program (Step 2) was designed and implemented over an 18-month period. Resources were upgraded while costs were reduced from $4 million to $3 million annually. New project management, programming, planning and quality control practices were installed and productivity increased threefold.

Following these short-range improvement steps, a long-range plan was developed covering a three- to five-year period. Strategic actions involved all areas of the corporation. Enough excitement was generated that a corporate planning unit was formed and the first corporatewide strategy emerged six months later.

One year after the "turnaround," a national auditor with responsibility for more than 100 similar concerns rated this organization first in the management of information technology — and this insurer has become a national leader in terms of underwriting results, financial condition and market share growth.

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IN DEPTH

(Continued from In Depth/6)

for others. For example, an analysis of more than 50 programming projects conducted by IBM's Federal Systems Division showed that productivity gains of 1½ to two times were achieved through the use of structured development techniques.

Productivity may also be enhanced by relieving systems staffs of the numerous day-to-day requests for special-purpose, computer-generated reports. "User-friendly" query systems allow users with minimal training to satisfy these requests themselves, thus freeing systems staff for more demanding assignments and employing the computer more effectively to support management decision making. Among such products are IBM's Structured Query Language (SQL), Applications Software, Inc.'s ASI-Inquiry, MRI Systems Corp.'s System 2000 and Informatics General Corp.'s Mark IV Query.

One of the most exciting recent developments is the use of applications development aids or generators. These packages greatly simplify the amount of programming required to generate displays, perform edits, access data, develop commonly used program modules and produce required documentation. Some organizations claim as much as three to four times more productivity from programmers through the use of existing generators — and more advanced versions will be available soon.

Other characteristics common in productive environments include coordinated business systems plans; interactive program support; tough management coupled with a sound staff-development methodology; data base management systems; good standards and project management methods; and receptivity to the use of software packages where possible.

6. Communicating with users and management.

The better data processing organizations pay close attention to the management of the five important communications channels to users and management:

- A sound business systems plan.
- A means to track and report performance.
- A top management steering committee.
- User involvement in systems development.
- A means for communicating when unexpected operations problems occur.

The business systems plan serves as a charter or widely accepted level of expectation. Performance reporting tracks status against the plan, but also keeps management abreast of important operating performance indicators, for example, terminal response times, machine downtime and output deliveries vs. schedule.

The steering committee establishes policy, helps set priorities and provides overall guidance to assure that information technology is focused squarely on the needs of the business and in line with other business priorities. User involvement in projects helps assure that the right systems are developed and installed properly. Finally, a means of communication with key users is needed to assure a swift but coordinated response to unexpected operating problems.

Information technology departments frequently make the mistake of assuming they have adequately addressed the user interface problem merely by creating a steering committee. Unless the other four channels are in good order, the committee will likely prove ineffectual.

7. Controlling the "Information Technology Revolution."

The advent of minicomputers, intelligent terminals and microprocessors has extended the role of the computer dramatically over the past decade. While reliable numbers are not available, it has been estimated that as much as 15% to 20% of traditional DP expenditures (excluding remote data entry equipment) may now be outside the central DP budget. This technological proliferation poses both opportunities and risks.

These external computing resources can be grouped into four categories:

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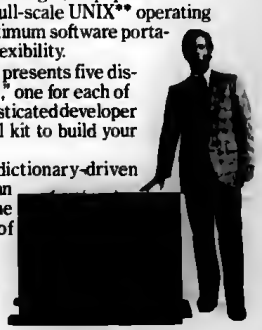

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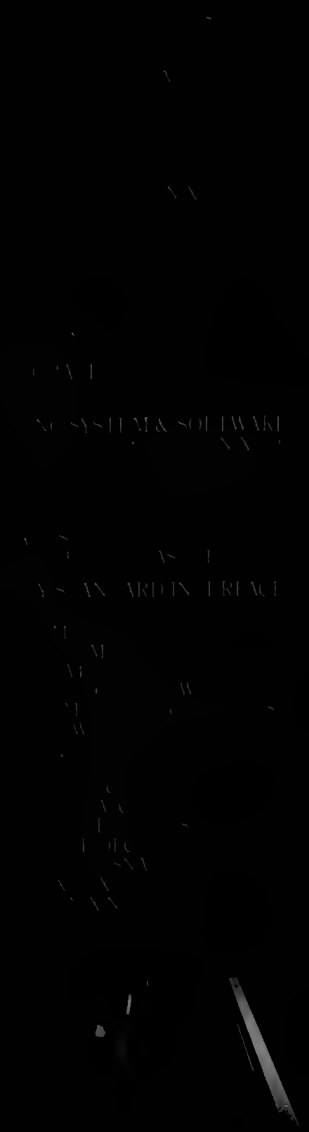

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IN DEPTH

works. Example: a network of text processors with electronic message capabilities or a minicomputer for testing electronic components.

• *Personal computers.* Desktop systems may perform statistical calculations, for example, in support of special projects.

• *Distributed processing.* Remote computers may be linked to a central machine, and the functions required to do order entry, claims processing and so on may be divided (the main data bases remain under central control).

• *Stand-alone business systems.* An independent computer operation may be set up to perform a cost accounting application, for example, or processing for one line of business.

Experience in the first three areas has been mostly good. Benefits can be significant and frequently include increased access to computer power, more effective and simpler systems solutions, new organization options for management and increased accountability for operating results.

While experience with stand-alone business systems can also be positive, the risks are far greater. Potential problems include incompatible systems and data bases, a deterioration in the quality of systems and information, potential proliferation of costs and increased vulnerability to fraud and the effects of personnel turnover.

The first and most crucial step in facing this challenge is to select a clear direction (the first critical success factor) for the use of information technology. Most abuses stem from confusion or frustration with central data processing activities and can be avoided or minimized if management is backing a carefully designed plan that focuses on the most critical needs of the business.

A number of organizations have found that establishing a control point for monitoring these types of nontraditional data processing activities can help a company achieve benefits while managing the risks. Necessary prerequisites include the overall plan discussed above, an appropriate charter for the position and the right individual to staff the position.

The office of the future presents a set of challenges closely related to those outlined above. Gains of 15% or more in professional productivity should be attainable from well-managed programs, but again, there are risks. As the momentum behind office automation builds and voice, data, video and facsimile information becomes more and more integrated, a repositioning and broadening of the information technology role may be desirable — but only in organizations where past performance clearly warrants the change.

As we enter the 1980s, much of the excitement of the early 1960s is reemerging. The information technology executive, operating from a strong base of credibility, can fulfill a major top-management information gap and influence profoundly the future direction of his business — and his career.

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About the Author

Joseph S. Mallory is a senior vice-president of Booz, Allen & Hamilton, Inc. in New York and eastern regional manager of its Information Services Division.

He has consulted for a wide range of clients in the areas of business systems planning, systems marketing, hardware and software planning and large-scale project management. Prior to joining Booz Allen, he was a marketing representative and systems engineer with IBM.

Mallory holds a B.A. from Wesleyan University and an M.S. in statistics/management science from Stanford University.

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AN INFATUATION WITH ANDROIDS

By Jacques Vallee

Humans have an unflinching faith in the truthfulness of computers, to the point of infatuation. But are machines always right? Vallee, a computer scientist and teleconferencing pioneer, gives a uniquely personal perspective on the limits of machine "intelligence" — current and future.

The technologist's claim is simple: To increase the quality of our lives, we need greater control. To get greater control, we need more information. To get more information, we need more facts.

Is this always true?

As a computer scientist, I can think of many instances when a fact is not a fact, when storing more data in a computer does not necessarily increase our information, when greater information does not mean better control. And I can think of many cases when our own technology lies to us and many cases when we lie to ourselves through technology.

One 1979 article on computers, distributed by the Knight News Service, told a typical story. A bank had installed an automatic teller to enable its customers to withdraw money at any time — a convenience made possible by the electronic age. The bank's computer kept a record of the transactions. The bank then discovered by examining the computer statistics that it was experiencing a long series of withdrawals every night between midnight and 2 a.m.

Afraid that somebody was stealing its money, the bank investigated. Its detectives found that the automatic teller

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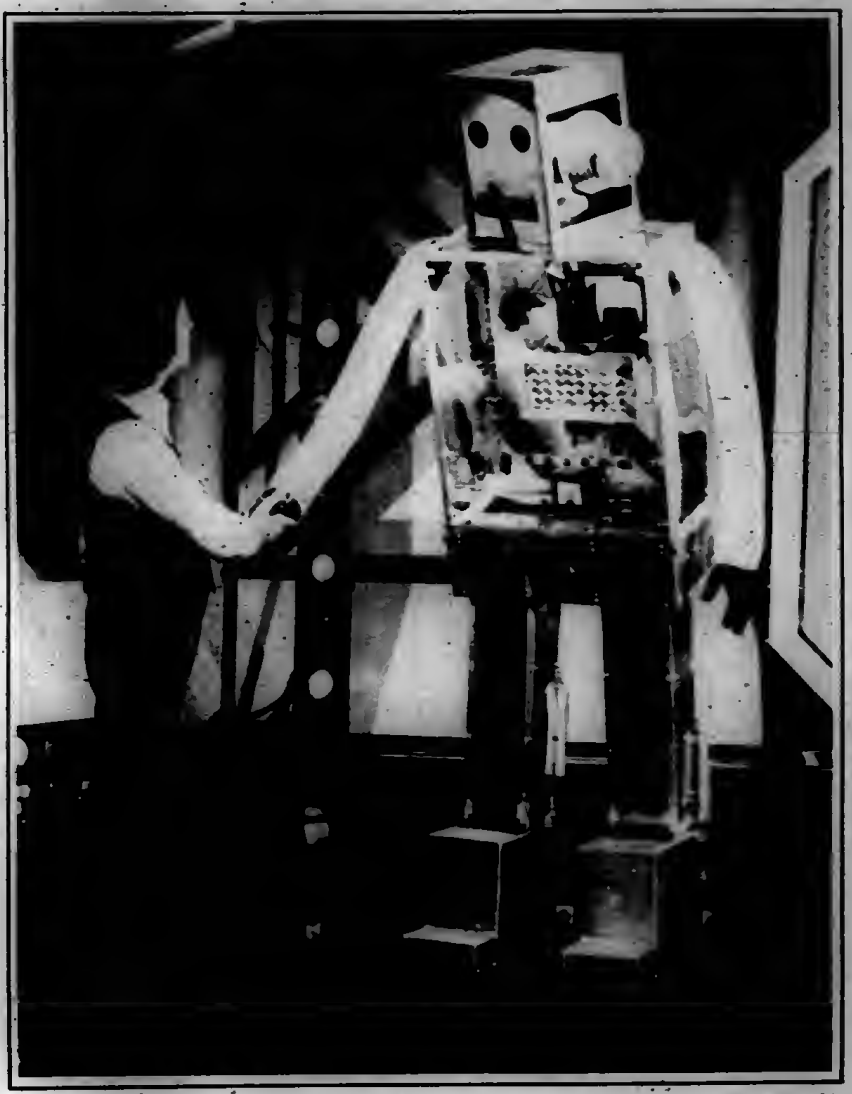

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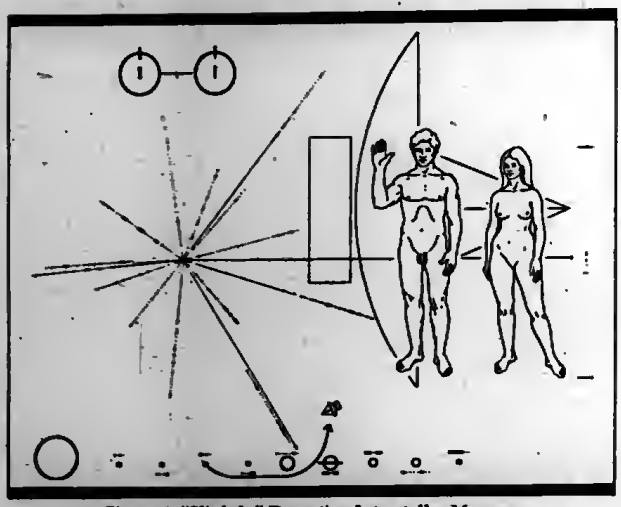

Figure 1. "Slightly" Deceptive Interstellar Message

was a convenient stop on the way to the red-light district. The article observed, "There's a bank someplace in America that knows which of its customers paid a hooker last night."

The banks and other large companies that can afford big computers know a lot more than that. They can track minute changes in our credit ratings and have no difficulty keeping a record of our tastes. They can also predict the future. Food chains tabulate their sales by product and by store, for example, for inventory purposes. The vertical stripes on the product labels instantly advise the computer of the number of items sold.

Marketing analysts who have access to these computer statistics can derive from them many indicators of social change in specific areas of your friendly home town. If one assumes that the food tastes of the black population are different from those of whites, companies can determine from their inventory data bases whether a given neighborhood is affected by racial change. These indicators, in turn, can lead the companies to close down their stores in specific areas.

A serious drawback of the current fascination with data bases is the fallacy that the "facts" they contain are always true. Just as there is a tendency to believe anything printed in a book or newspaper, there is an aura of authority around the little green characters on the video screen. It can lead to big mistakes.

Interstellar Deception

Information and communication systems are *social* systems and as such they can be distorted in many ways, because human groups will transfer their biases and their fears, their beliefs and their fantasies, into any available medium that can be used to convey information. Only an engineer or a politician would take such information at face value. A perfect case in point is the Pioneer F plaque (see Figure 1).

In 1972, the National Aeronautics and Space Administration sent the first interstellar message into space. The message had originated with Dr. Carl Sagan and his wife and had been "slightly" modified by Nasa managers before it was engraved on a Pioneer spacecraft that would fly by the outer planets and eventually leave the solar system. It is frequently described in space and science-fiction journals as a "giant step" toward communication between the human race and alien cultures. To information specialists, however, the message is fascinating for another reason: it is the first instance of interstellar deception.

The message illustrates a human male with normal organs, but when it came to the female, the space agency objected to the explicit drawing of the genitals. (In the words of Carl Sa-

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IN DEPTH

gan, "the final version has been toned down considerably" in successive revisions made at the Nasa-Ames research center.).

This deception would tell the aliens out there quite e lot about the discrepancy between our high technological development on Earth and our low social sense. Reflecting on this fact, communications specialist Ken Hirsch of California State University comments that such deceit would have serious consequences in the unlikely event that the probe is ever found: An alien civilization might draw entirely false deductions from this drawing, especially about human reproduction.

'Not only can data bases be fooled, but a man who relies on pattern recognition, on the strength of computer files, can probably be fooled more easily than a man who does not.'

They might also learn that in certain matters, Earth scientists "prefer ambiguity and obscurity to explicitness and precision." And if they did not have the concept of deceit, that first lesson from Earth could have far-reaching consequences.

Intentional Distortion

Bias in science and false data in advanced systems are not limited to the areas of sexual and moral etiquette. In 1975, e team funded by the Office of Naval Research conducted a fascinating study of the "intentional distortion of information in organizational communication" — in other words, who keeps what from whom around the office. The researchers found that by manipulating the sense of trust toward superiors within an organization, they could cause drastic changes in what was being conveyed upward or downward.

They found that the greatest distortion of information came from young personnel of lower rank who were new to an organization. The same was found to be true among workers who indicated low satisfaction with their roles.

The *quantity* of information, however, did not decrease significantly when certain groups distorted the facts: *They simply passed along a growing quantity of irrelevant data.* The result was thet higher echelon decision makers "lost the ability to discriminate between relevant and irrelevant facts" in their data base. And since the time spent in one job is decreasing rapidly in American business, and since work satisfaction is generally reported to be decreasing too, what we can expect to find in our data bases in the next decade or so is a good deal of garbage along with the "real" facts.

During the Vietnam War, the Pentagon's Advanced Research Projects Agency (Arpa) convened e meeting of leading computer experts to ask them how computers could help win the war. The experts met in Hawaii (in order to be "closer to the theater of operations") and they reviewed the Pentagon's eppraoch to electronic planning of military operations. Ships loaded with punch cards regularly brought in the most minute descriptions of the conflict. Body counts and operational moves were fed into giant computers and regularly analyzed, yet there did not seem to be any improvements in America's ability to beat the enemy.

One of the experts who ettended the meeting told me that he picked up and read the local student newspaper during an especially boring phase of the proceedings. A former University of Hawaii student then stationed in Vietnam had sent in an amusing story. He had been assigned to an area where regular patrols were conducted every night, yet his buddies did not appear to be taking any special precautions and even seemed casual about the whole operation. When the writer inquired about this casual attitude, a lieutenant took him to a wall map of the area on which two regions had been carefully marked in pencil.

"This here is where the V.C. hang

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IN DEPTH

out," he said, pointing to one of the areas, "and this is where we're going tonight," pointing to the other one. "We don't bother them and they don't bother us!"

The "operation," of course, had been duly reported and had now ended up as computer cards in the data base. Having read this story, the "expert" had trouble paying attention to the remainder of the meeting, which concerned the sophisticated analysis of such data bases. The facts had been completely biased by perfectly ordinary human and social factors before the figures were even tabulated.

The preoccupation with the storing of large quantities of facts should no longer impress us. Both Arpa and the National Science Foundation have well-funded programs for research into the problem of "very large data bases," as if we knew what to do with small ones! Not only can data bases be fooled, but a man who relies on pattern recognition, on the strength of computer files, can probably be fooled more easily than a man who does not.

European terrorists, for instance, have already found ways to use the police's own information systems to cover their tracks: If their getaway car is yellow, they make sure that two or three similar yellow cars are seen in the area at the same time. They use similar-sounding aliases in different situations to encourage the computers to "discover" spurious patterns: The software is led to track the diversion and to miss the real criminal.

Anything that can be designed by human logic can be fooled by human ingenuity. The best experts in data bases are employed by the intelligence community, as Alan Turing was, and they have long known that the key to information systems is the human being who has built up his own files and maintains them in his own way — with or without the use of computers.

Urge to Capture

Our culture is constantly tempted to capture everything and store it in a computer forever. That temptation will undoubtedly lead to greater and greater sales of magnetic memories and, concurrently, the awarding of many more grants to the likes of the PIN Project, which spend their time trying to retrieve all these alleged "facts."

But I cannot help wondering if the Native Americans were not right when they refused to commit important facts to a permanent record: The white man, they contended, wrote things down in order to *forget* them better — not, as he claimed, to remember them more easily. Witness the treaty violations, the breakdown of trust and the legal maneuverings all made possible by the existence of written documents, while the word given by one man to another was once sacred.

Perhaps computerized information is just another step along this road of alienation, another way of feeling safe about what we do not understand, of imposing a false sense of order on our in-

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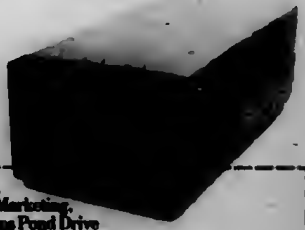

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creasingly confusing world. Yet it could also be something more, another way of building a cultural platform for a new generation of astute memory-grabbers. Perhaps they will know how to get through the curtain of data and return to the human reality it tries so hard to hide.

It seems ironic to write that the same technology that precipitates human crises may be the technology that will ultimately solve them. Yet that very paradox has been seen before. I have tremendous faith in humankind's ability to survive and in the potential development of the computer as a tool for creativity. These two forces, combined, form a very powerful winner. In spite of Francois Meyer's real concerns about the scope of the imminent technical explosion, I trust that we will survive beyond the first quarter of the next century.

But the human world as it has existed until now may be utterly revolutionized. There will be drastic changes in the shape of things and people. And it may no longer be possible to differentiate accurately between things and people. As I write this chapter, the U.S. Supreme Court has just agreed that new forms of life invented in the laboratory could be patented. What is to stop us from patenting new forms of intelligence?

Christopher Evans, perhaps the most gifted of those who have researched the interaction of humans with computers, has offered in *The Mighty Micro* a view of this transition that I do not entirely share. By concentrating on the hardware, it is always possible to go away dreaming of instant solutions, tremendous breakthroughs and energy miracles. But it is the software that matters, and it changes slowly.

A San Francisco banker once gave me a marvelous definition of software. "Software, for me," he said, "is hardware that does something." The Mighty Micro will be significant only when it starts *doing something* — not simply driving a Ping-Pong ball on a home television set or grabbing a frame of advertising out of a TV channel.

I am more impressed by a remark made by Saul Amarel in an unpublished RCA memo of 1969. He wrote: "There is no visible limit to the possible extent of computer applications in any area of human intellectual activity."

Yet in an apparent contradiction of this statement, experts like Joseph Weizenbaum have taken issue with the claims of artificial intelligence buffs that they are very close to making machines which think. As Theodore Roszak observed in a review of Weizenbaum's work, to claim that the computer will ever master our messy human realities — or indeed improve upon the mind's way of dealing with them — is "a sign of the madness of our time."

If Weizenbaum and Roszak mean that it is scary and childish to delegate to computers the survival decisions that belong to humans, as has been attempted, I certainly have to agree. But if

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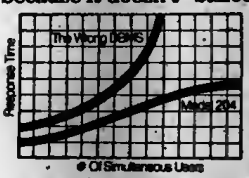

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          You ask too many questions.
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          Why do you ask that?
WHY DO YOU ASK?
          Everything you say reinforces
          my feeling that you are stupid.
WHAT MAKES YOU THINK I AM STUPID?
          You ask stupid questions.
OH? I ASK STUPID QUESTIONS?
          Yes.
WHY ARE YOU SO SURE?
          Because they told me about you.
IS THAT THE REAL REASON?
          No.
CAN YOU BE MORE INFORMATIVE?
          No.
VERY WELL.
          How much are "g . . .
INTERRUPTED BEFORE MEMB
(MEMB BROKEN)
hi.
U.B.A.
(MEMB BROKEN)
:?
COMMANDS ARE: (?=@ VALUE BT EVAL OK GO
RETURN BTV BTV" BTV! ARGS! EVAL
```

Figure 2. Discussion With 'Doctor'

they imply that machines cannot "think," my impression is that the problem is entirely one of definition.

If a thinking being is somebody who arises at 6:00 in the morning, gets dressed, drives an air-conditioned Cadillac downtown, sits in the office of a bank and reviews loan applications all day before driving back home, drinking a couple of beers and watching the "Tonight Show" on television, if that is all there is about a thinking being, then we can build such beings right now. They would even consume less energy than humans do. They could be endowed with other rare qualities, such as promptitude and courtesy.

If what we call a thinking being is somebody who suffers, agonizes over the pains and terrors of life and celebrates its joys in songs and poems or simply in quiet, personal feelings of friendship and love, then we are a long way from creating such a thing. To think, in that sense, requires muscle and the nervous memory of situations that have been experienced, and no robot will gain that experience unless it has been endowed with something equivalent to muscles and nerves and allowed to learn — slowly, painfully, along with humans. The extent to which such an automaton would approximate man is largely a matter of our own definitions.

Simulation programs designed as exercises or as jokes have been known to amaze people who engaged in dialogues with them. The Eliza program, which simulated a psychotherapist, was a piece of software to which strangers found themselves eagerly telling their life stories, in hopes of receiving new insights. I had several dialogues with the Doctor program, which was derived from Eliza, and found it hard to take very seriously. It had an imperfect command of English and tended to get into terrible entanglements with its operating system. (Figure 2 shows my dialogue with Doctor at a 1972 computer conference in Washington, D.C., the first time all such programs in existence on Arpanet were being demonstrated together.)

A more impressive experience came from a dialogue with Parry, a program designed to simulate the verbal behavior of a paranoid patient. Parry had some remarkable ways of misunderstanding questions and taking what someone said completely out of context, very much as we humans do, but its dialogue was understandably limited by the purpose of the experiment (Figure 3).

The fascination created by pro-

```
          Scientific control of behavior is
          possible.
PARRY:    YOU KNOW, THEY KNOW ME.
          Men are not born free.
PARRY:    WHO ARE YOU, REALLY?
          The only moral question man need
          ask is how to act.
PARRY:    ARE YOU TRYING TO FRIGHTEN ME?
          Some mental patients have worn
          electrodes for long periods of time.
PARRY:    I AM GETTING AFRAID OF YOU.
          One patient who had a stimulator found
          that the feeling was good.
PARRY:    YOU ARE MAKING ME NERVOUS.
          One can imagine people using it to be
          more tranquil.
PARRY:    WHAT ARE YOU TRYING TO DO?
          Control of the mind.
PARRY:    WHAT DO YOU KNOW ABOUT ME?
          The mind is actually a process.
PARRY:    I HAVE ALREADY TOLD YOU ENOUGH ABOUT
          THAT.
          We can influence emotional reactivity.
PARRY:    THEY ARE OUT TO GET ME.
          Speculations are unnecessary.
PARRY:    YOU KEEP SAYING THE SAME THINGS, WHY NOT
          CHANGE THE TOPIC?
          Communication can be established
          between brain and computer.
PARRY:    I WOULD RATHER NOT DISCUSS THAT ANYMORE.
          Man is a machine.
PARRY:    I AM GETTING TIRED OF HEARING THE SAME
          THING OVER AND OVER.
          Where is the newborn's freedom to
          develop his mind?
PARRY:    YOU ASK TOO MANY PERSONAL QUESTIONS.
          We must escape from the blind forces
          of chance.
PARRY:    THEY SPY ON ME.
          There is no such thing as mind in
          isolation.
PARRY:    YOU HARP ON THE SAME THINGS TOO MUCH.
          The most important thing is the
          preservation of equanimity.
PARRY:    GOOD-BYE.
```

Figure 3. Discussion of Mind Control With Paranoid Robot

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INFATUATION WITH ANDROIDS

IN DEPTH

'My contention is that machines will be able to "think" by any human standard that can be precisely defined. But as the machines get "smarter" by these rational standards, it is the definition of humanness that will change.'

grams like Parry and Doctor suggests that we are not very far from having systems that are capable of masquerading as humans. Chris Evans' observations support the same idea: Many years before Parry and Eliza, he found that hospital patients told more details of their symptoms and reported them more accurately when typing on a computer terminal than when speaking to a doctor or nurse. These computers do not have "thinking" programs, mind you, but do a sufficiently good job of approximating human dialogue that they are intriguing, even fascinating, to a wide range of audiences.

The combination of these software abilities with engineering know-how, already reflected in the creation of lifelike figures and automata as in the Hall of Presidents at Walt Disney World, suggests that the era of industrial production of human-like androids is closer, perhaps, than we would care to believe.

After all, if I am correct in stating that there is more "information" in the question than in the "data" from which the answer is drawn, then the public's fascination with interactive programs like Doctor and Parry could easily lead to projection into or infatuation with such androids. Consider Chamberlain's program Ractér (Figure 4). Although it is still extremely slow, it has reached a level at which it can compose not only understandable stories, but also pieces of fiction containing brilliant insight. It is the kind of stimulating dialogue that a human being might find refreshing: Indeed, it might lead the participant to a deeper understanding of his own thinking, feelings and actions.

Programmed Humans

All books about computers raise summarily the question of thinking machines, then dismiss it with the ease and grace of Jimmy Connors returning the service of a 12-year-old. The books say that machines cannot possibly think because they are capable only of executing programs. This answer evades the problem entirely. To begin with, let me offer the observation that it is far easier, in most cases, to program human beings than it is to program computers, as dictators and religious shamans have demonstrated throughout history. Indeed, what is overwhelming is the task of trying to *stop* human beings from following acquired programs.

Aside from the kind of programming developed by cults, religious movements or political organizations, everyday life furnishes many cases of acquired behavior nothing seems to be able to change. Visit any 24-hour restaurant in the U.S., for example, and try to prevent the waitress from serving you a cup of coffee. Or pick up any telephone and explain to the operator that the machine has malfunctioned and won't return your last dime (but you absolutely must talk to Linda in Akron). Or try to order a glass of water *without ice* at your favorite diner ... Human beings can clearly be programmed. But can machines think?

The answer is that machines can do anything that can be described completely and precisely. So how would we recognize a machine that thinks? If an automaton need only play chess to be declared intelligent, as in the days of Edgar Poe and Mealzel's Chess Player, then obviously today's computers are intelligent.

"No, no, absolutely not!" say the champions of Human Reason. "Our minds are capable of much more than that. We compose music, we write poems. For a machine to be declared intelligent, it would have to create beauty."

Defining 'Human'

A few years later, somebody has programmed a machine to write stories and play compositions that still lack a bit of charm, but are clearly on the way to a sophisticated future. But is that intelligence? Is it thought? Of course not. What the machine has done is to force us to reconsider our definitions of *what it means to be human*. That part of thinking that can be defined rationally and encapsulated in a testable statement, can theoretically be accomplished, sooner or later, by an automaton.

My contention is that machines will be able to "think" by any human standard that can be precisely defined. But as the machines get "smarter" by these rational standards, it is the definition of humanness that will change. I look forward to that. I think we will discover, beyond these rational standards, that the human race has many other psychic talents we had previously been afraid to recognize, talents that constitute our truly genuine existence as humans. They are the only part of us worth talking about.

Although this thought is scary to most people, it should make us afraid only to the extent that our daily actions are in fact automatic, unthinking, and perhaps unworthy of truly developed human beings. The fact is, if a machine were ever built that ap-

```
Think of an assassin, of his burning submarines
and rotten sailboats.  This dazzling assassin might
ask himself  "If I had not been dazzling, indeed
if I had not been an assassin perhaps my sailboats
would not be rotten and my submarines not burning.
"Well, quizzically bilious secretaries may well
declare themselves, and probably nowers can be
said for a killer but, believe me, far more can be
said for an assassin.  In fact assassin, whether they
are dazzling, as I have just mentioned, or even
outnumbered, are, in their own inimitable fashion,
abstractedly similar to killers:  At line, for
comparisons here, no matter how well-miked they
might appear, are simply out of the question. But
try to follow my reasoning on this issue.  This
image of secretaries declaring themselves or, more
likely, catching themselves simply because some
blue assassin has rotten sailboats is ludicrous.
His sailboats might as easily be flaking or
burning, they need not always be rotten.

        Secretaries, as a class, may not follow
this argument.  Address the strong question to a
single secretary, however, and the strong
answer may prove agonizingly different.  For
example, ask her whether her own sailboats
are rotten and she may reply  "My sailboats?
Rotten? Why you bilious chicken,  my sailboats
are never rotten."  Here it would be prudent to
generally appeal to secretarise, ask whether
their highways are splintered.  This will shift her
attention.  The vision of splintered highways
will shift anybody's attention.
```

Figure 4. 'Racter' Output (generated in about two hours)

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proaches humans in sheer intelligence, it would certainly not stop there. The Wright Brothers' plane didn't go much faster than the average bird, but 50 years later, aircraft went through the speed of sound.

Several Hollywood productions of the '70s have shown automata used as personal companions, and satanist Anton LaVey has suggested that the commercial development of such alternative beings was unavoidable. Yet the same experts who rave about the powerful capabilities of their software creations are scared of their machines looking human. They cringe at the suggestion that the computer's ability to speak, compose poems, compute and even play musaic could be embodied in anything more elegant than a steel cabinet with plastic buttons, set on four casters and firmly held in place by thick black cables.

This reluctance is understandable. It is the reaction of the monkey looking at himself in a mirror. It is the shudder that seizes any being when he recognizes his own self, or part of it, in the world of the OTHERS.

Religious Awe

Computer specialists have carefully resisted the urge to which automata makers of earlier centuries had succumbed: the temptation to build replicas of human beings. This extraordinary skill, unfortunately relegated to the level of a "minor art," has now become confined to the backstage laboratories of Hollywood, where robots are made to appear as grotesque and unhuman as possible or as comfortable parodies of humanity like R2D2 and C3P0 of *Star Wars*.

Such blushing reserve is not characteristic of modern technology. I think it has its root in the almost religious awe with which computers scientists hold the truly human. They have fled from the approximation of human behavior in their creations, just as they have avoided the direct implications of group communication through computers. They have chosen computer science largely because it is a field in which they can escape from human realities, not learn to master them. And in that observation of a very real human weakness may be found the root of some technological failures discussed here and of some failures, like office automation, that may lie in the future. None of these failures is final: They hinge on redefinition and reframing.

Early automata show us an older technology frankly addressing the human question in a way that has eluded computer scientists for the last 30 years. When the temperature rose above 80° Fahrenheit, for example, an Isis automaton gracefully removed her veil and covered herself when it got cold again. She acknowledges limitations that are similar to ours.

Current computers make no such concessions to our weaknesses. They go on working until they falter and stumble and die, never pausing to play a tune or tell a joke. I cannot believe this seriousness will last. As scien-

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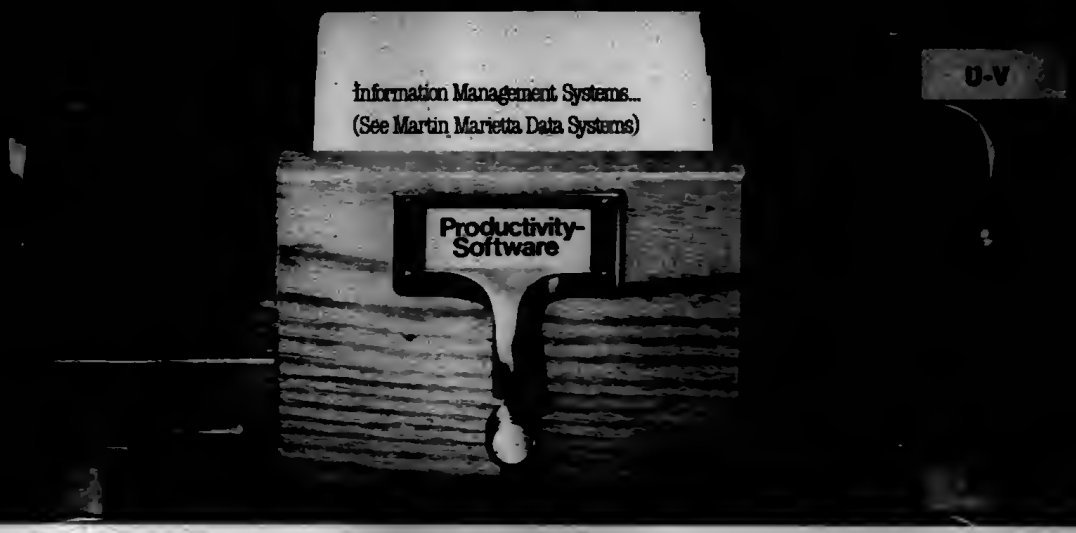

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IN DEPTH

tists lose control of their creations, new generations of tinkerers will start playing. They will embellish and they will enlighten the technology and its users. In so doing, I believe they will show us the way to a world we can hardly imagine today, even with the help of all the data bases and machines we keep under lock and key in our industrial basements.

It is conceivable, just beyond this new wave of creation, that we may encounter the limits of what we currently define as human thinking. It might occur when the chips are down, when they have given way to new methods of developing logic circuits, perhaps by growing them like nervous tissue. Our ability to perceive the physical universe is limited. Our ability to store and then retrieve the information we have acquired about the physical world is also limited.

Some theoreticians have speculated that human consciousness may be restricted to an understanding of nature, limited by the encoding function the brain uses to perceive and transmit information about reality. (Saul-Paul Sirag has suggested that this function might be using a mechanism analogous to the "trapdoor" process discussed earlier, which, if true, would have direct implications for physics.)

Other people, such as Laszlo, have envisioned a sort of "world homeostat system," based on the idea that global control must exist in any dynamically stable system — the sphere of human existence, for example. The concept of a "psychic control system," which I proposed in *The Invisible College*, would also be relevant here.

Two science fiction writers in the Soviet Union, the Strugastky brothers, have used the same idea in their novel *Definitely Maybe*. A group of scientists reach the limits of information complexity capable of reduction by the human mind, and they flip into an absurd universe where personal events, strange coincidences and external incidents combine in terrifying patterns. They are forced to retreat to a safer mode of human condition in which there is no more pursuit of novel inquiries.

It is conceivable that some future generation of computer scientists will have to deal with such problems and that they will regard the robots of our century with amusement and indulgence. For us, Isis still wears her veils. Perhaps she will be more generous with those future scientists and reveal to them the insight we have missed.

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About the Author

Jacques Vallee is president of Infomedia Corp., a computer conferencing firm based in San Bruno, Calif.

Vallee spent four years studying communications and group process at the Institute for the Future. The National Science Foundation has sponsored his work to create computer systems for people who don't like computers.

Vallee holds a B.S. in mathematics from the Sorbonne, an M.S. in astrophysics from Lille University and a Ph.D. in computer science from Northwestern University.‡

DATA BASE MACHINES:

Still A Question Mark

By Ron Ross

Until recently, there were no data base machines in the marketplace to prove anything you might say about them wrong. Now the situation has improved, but just barely, as a few self-styled data base machines have come upon the scene. But the fundamental riddle remains: What *is* the data base machine? Don't expect an answer to come strictly through technology. If history is a guide, the marketplace will decide the future of data base machines. Those contenders (machines or machine configurations) that prove most popular — and possibly most cost-effective — will ultimately cast the deciding votes.

If IBM were to say tomorrow that such-and-such is a data base machine, would this decide the issue? Not necessarily. In exploring the market for data base machines, one finds not just a single marketplace, but at least three separate and distinct ones. IBM is preeminent in only one of them — the mainframe marketplace. The other two are currently beyond its grip: the mini/maxi marketplace (where Digital Equipment Corp. speaks with a quasi-IBM voice) and the emerging automated office marketplace (best described at present as a rabble). Separate perspectives on the data base machine question could emerge in each of these three marketplaces. The psychology of buyers in

IN DEPTH

each is different, as are the precedents and constraints (or lack of them, in the case of office automation) that characterize typical buying patterns. There are real differences in what concepts, packages and pricing the buyers in each area are likely to accept. The bottom line: by mid-decade, it is likely that we will have not one, but three separate views on the data base machine question.

For the long term, however, it is not clear that such fragmentation will persist. After all, data base management is data base management, no matter where it takes place. The conceptual requirements for data base technology in mainframe networks are not terribly different from those for either mini/maxi networks or local-area (office automation) networks.

It is entirely conceivable, for example, that one particularly aggressive vendor could market a line of data base machines with models targeted to each of the three environments. Internally, the three versions might be very different, but in terms of functions, all three could be identical. In other words, there is really nothing very different in what the bottom-of-the-line Model 100 would have to do (in terms of data base management function) from what the top-of-the-line Model 500 would (or should) have to do in its environment. Possibly the only difference would be the speed at which the functions could be performed.

No vendor has announced any such line of machines, much less penetrated the marketplace(s) at this point. But even if one had, the question of what constitutes a data base machine might still be unanswered.

Thorny Issues

For example, what if the Model 500 had hardware specialization in it, but the 100 didn't? Would the 500 be a data base machine, but not the 100? Would the fact that all three machine versions functioned as data base "black boxes" imply that the entire line represented data base machines, regardless of whether any individual version had hardware specialization? What if none of the versions had hardware specialization? What if a weaker competitor's line did have specialization? What if the specialization was optional? What if any one of the machines could stand alone? What if the 100 and 300 were successful, but the 500 fizzled?

These questions illustrate the thorny issues that the data base machine question presents. The basic dilemma is this: Do you define a data base machine by hardware specialization, by functional specialization, by marketplace dominance or by some offbeat combination of all three?

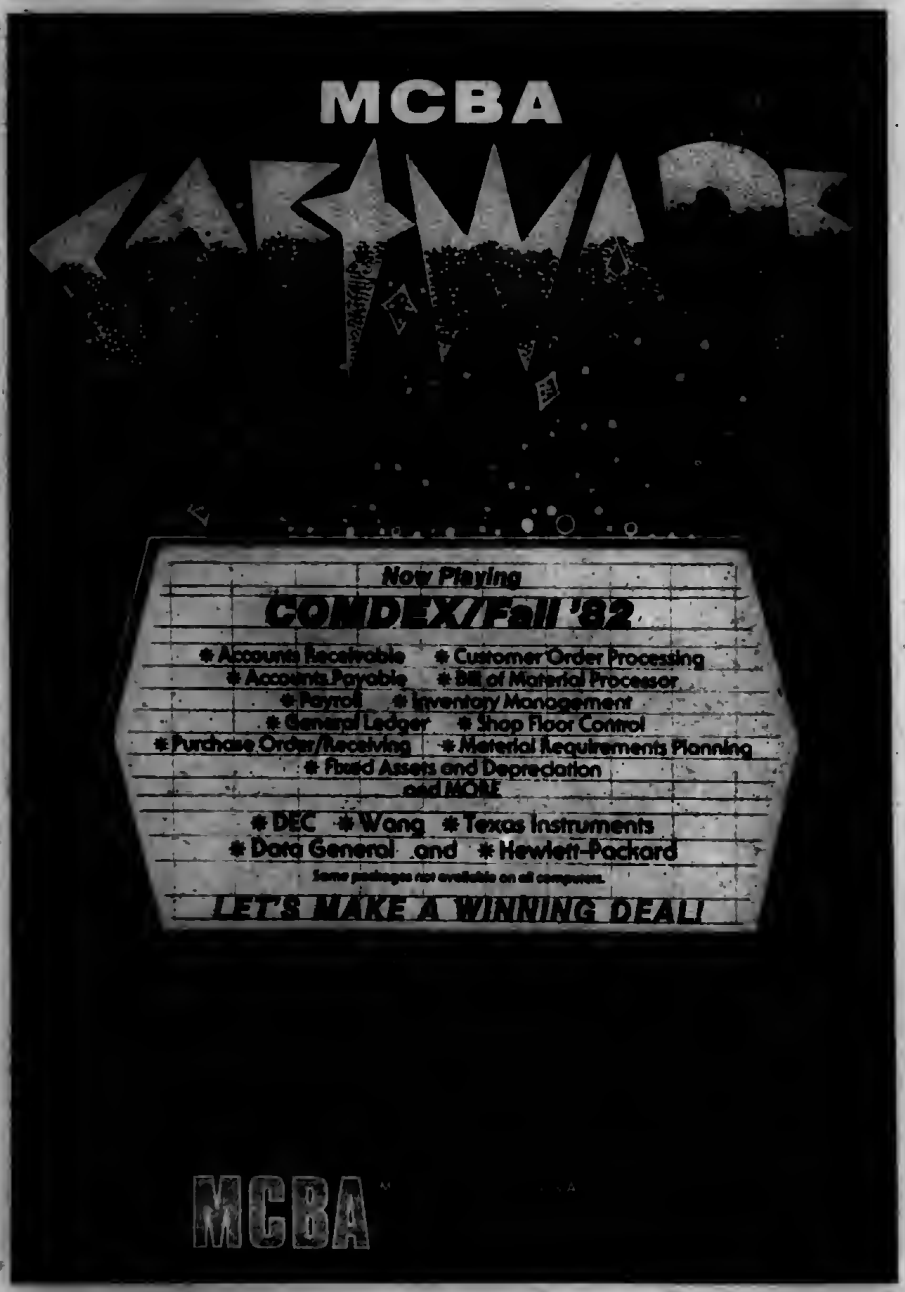
In the discussion that follows, each of the three relevant marketplaces for data base machines is examined in order to review precedents and trends that may lead to a resolution of this issue in the next three to five years. The focus centers on the commercial arena, rather than the theoretical or scientific, since it is there that the final votes will be taken.

The Mainframe Marketplace

In the mainframe arena, data base machines are most notable for their absence. The big story here during the past four to six years has not been major innovation in data base technology — processor-based or otherwise — but rather the significant and relentless improvement in cost/performance of generalized hardware.

Keeping the distributed data processing (DDP) issue to the side for the moment (since it is only just now becoming any sort of factor anyway), the real motivation for data base machines during this period has been the possibility of off-loading overburdened hosts. (Remember that adequate and reliable data base capability — via data base management system [DBMS] software packages — has been available all through this period.)

For the user, the alternative to off-loading, of course — assuming the desire to continue building new applications and adding new users — is an upgrade of the mainframe. If you were a prospective vendor of a data base machine, this then would have



been your challenge: to beat the upgrade alternative on the basis of simple economics.

As yet, the gauntlet lies untouched for a number of reasons. In the first place, the issue is not simply whether the vendor could beat the cost/performance equation today (it probably could), but whether it could continue to do so next year and every year after that. The squeeze has been on from the very beginning and, as events have shown, has gotten relentlessly tighter every year. The future undoubtedly holds more of the same.

But that was not the only problem the prospective vendor faced. Mainframe users tend to be extremely shy about multivendor hardware configurations. So the prospective vendor not only faces a relentless hardware squeeze, but also has to deal with ingrained market phobias.

Furthermore, unless you are one of IBM's traditional competitors (that is, Sperry Univac, Honeywell, Inc. or one of the other mainframers), you face building a comprehensive, reliable and extensive hardware support network. This is an absolute must in the mainframe environment and a formidable obstacle to any company not already in that business — say, for example, independent DBMS software companies.

The plug-compatible manufacturers (PCMs), of course, are already in that business, but what do they know about state-of-the-art data base technology? Of course they could learn. But building specialized data base hardware puts you out of the plug-compatible business — no small step for a struggling PCM to take.

There are other factors as well. For one thing, there are grave doubts about the suitability of entrenched mainframe DBMS for data base machine operation. (No vendor would be so foolish as to believe systems like IBM's IMS, Cincom Systems, Inc.'s Total, Cullinane Database Systems, Inc.'s IDMS, Software AG's Adabas, Applied Data Research, Inc.'s Datacom/DB and so on are not entrenched marketplace factors.)

The reasons for the pointer-based systems in particular are summarized briefly as follows:

- Lack of a "large-chunk" approach to data access.
- Resistance to distributability because of structure-bound data management techniques.
- Reliance on low-level access languages.

If you are a prospective data base machine vendor, then you almost certainly must go to new DBMS technology — relational or whatever. But this means a long lead-in time (remember that much of the data management function in any data base machine will remain in software), without any comfortable marketplace niche to fall into as you go. The bottom line: unacceptable risk.

All of these factors have thwarted several development efforts over the past four to six years that might have led to the emergence of data base machines:

'IBM certainly has the means to create specialized data base machines. But would such machines be to its advantage? As long as competition from "off-load" data base machines remains unrealized, the answer is a definite "no."'

- Cullinane experimented with using traditional DEC minis for a back-end DBMS in the mid-1970s. However, it found the performance and market outlook not sufficiently promising to pursue the concept commercially.
- Intel Corp. bought MRI Systems Corp. in late 1978 with the intention of researching and building relational associative processors (RAP). It discarded the notion in favor of new marketplaces, as discussed below, after concluding that it had already missed the market window for such devices by several years.
- At least one PCM explored microcoding for an independent DBMS

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IN DEPTH

but the action proved of little consequence. The PCM itself has had financial difficulties.

What about IBM itself? IBM certainly has the means to create specialized data base machines. But the question is, would such machines be to its advantage?

As long as competition from "off-load" data base machines remains unrealized, the answer is a definite "no." The only alternative, remember, is to upgrade — precisely the route IBM likes its customers to take.

Creating a specialized processor — particularly one that could be used to off-load — might create all manner of undesirable side effects. First, it creates a specialized processing niche where other vendors might gain a foothold.

Second, it probably means departure from the 360/370 architecture — a major business sin from IBM's point of view. Finally, its result would inevitably be "lockout" of certain vendors — perhaps DBMS vendors. Although antitrust considerations are diminished from the 1970s, a residue of caution undoubtedly lingers.

If not IBM, what about Honeywell, Univac, Burroughs and the rest? Look at each in isolation as mini-IBMs, and much the same arguments as above hold true.

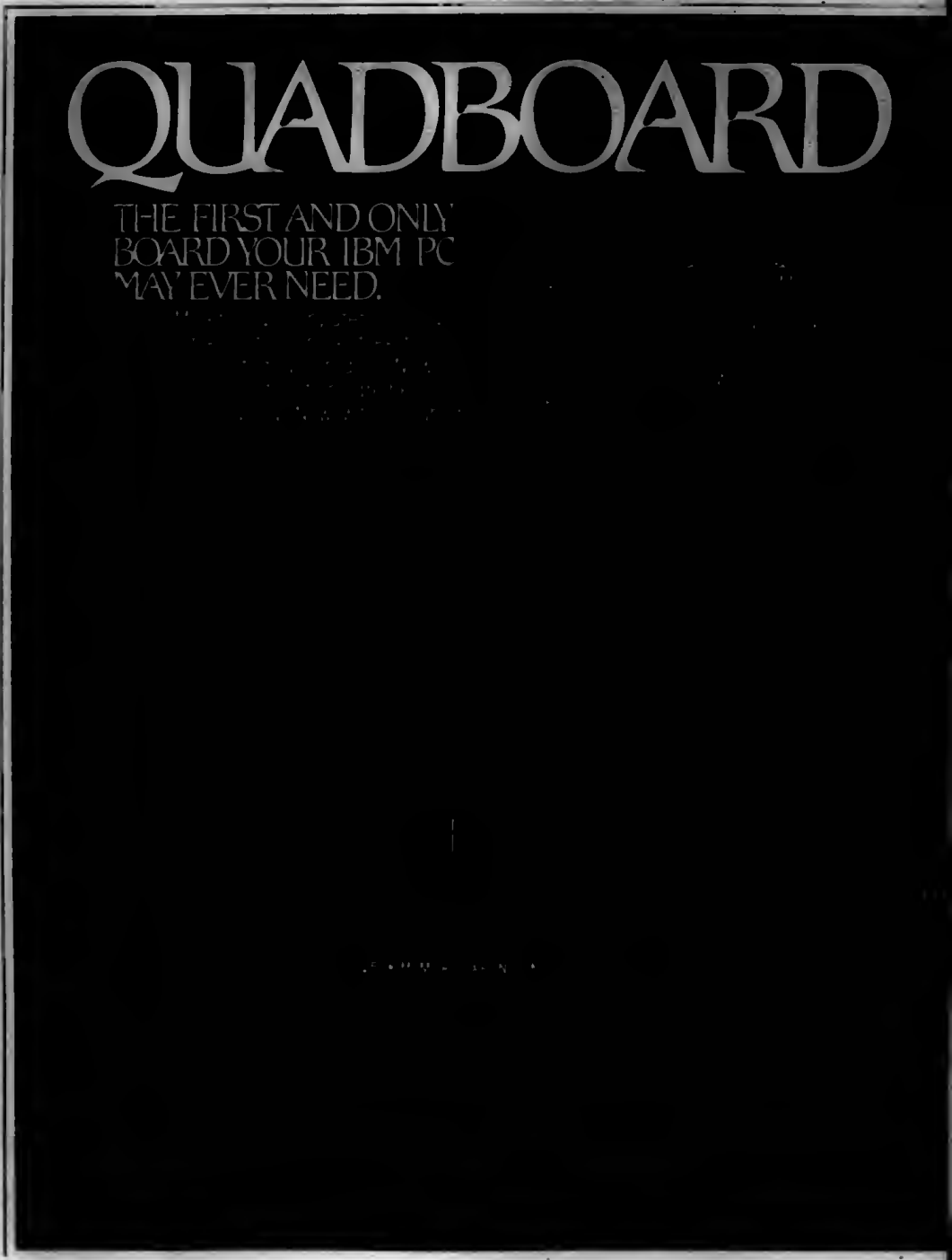
Happenings in DDP

The absence of significant developments regarding specialized data base machine hardware from any of these sources leaves the door open to default definitions from other areas of development. Most significant among these other areas is DDP, where vendors have been moving steadily toward creating interconnection facilities for their respective DBMS.

The rallying cry in this movement has been to allow distribution of application processing away from the DBMS function. The goal is to permit application programs issuing "calls" for data base services on one machine to communicate with data bases under the control of a DBMS executing on a separate machine. The important point is transparency of the distribution to the application programs, as well as (as far as possible) the DBMS itself.

Once this is accomplished and the DBMS is physically and logically segregated to one particular node in the network, it becomes very tempting to call the processor at that node a "data base machine," especially where the processor performs no other type of processing. The result: a data base machine definition based on function, applicable even to generalized machines.

This is an important point. In the function-oriented view, the issue of hardware specialization is a different question altogether from the data base machine question. You can have a data base machine with hardware specialization or without it. You can also have a "host" machine (without distributed processing functionality) that is not a data base machine even though it does run a DBMS and does have hardware specialization. In the function-oriented view, whether or



DATA BASE MACHINES

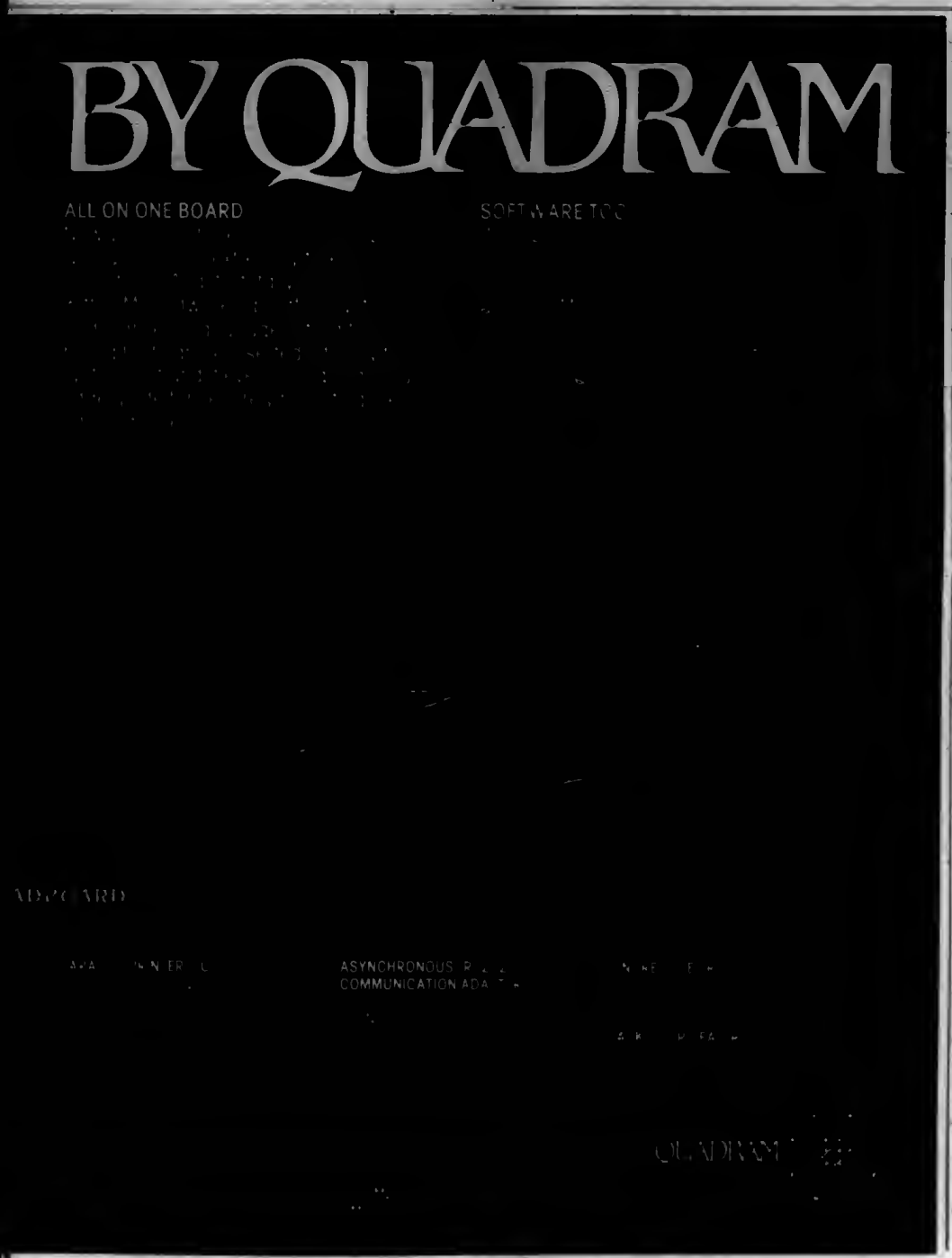
IN DEPTH

not a particular processor constitutes a data base machine depends entirely on its processing role in the network. Hardware specialization has nothing to do with it.

This view does seem slightly artificial. As discussed, however, in the absence of convincing evidence to the contrary, the mainframe user community does not currently tend to dispute those DBMS vendors that profess it.

There is, however, an implicit line that users seem to draw. Since the function-oriented view allows you to call any distributed node supporting the DBMS capability a "data base machine," to sell such a machine, all the vendor need do is cleverly package an existing DBMS (with distributed support) within a nonspecialized plug-compatible machine and announce its availability.

Users in the DP community will undoubtedly see this ploy for exactly what it is — an attempt to sell plug-compatible equipment for off-loading purposes under the guise of the distributed data base approach. There are few indications that the strategy will work.



Do-It-Yourselfers

But what about *outside* established DP circles? A not-to-be-neglected force in large-scale data processing these days is splinter end-user groups looking for means to do their own "data base" processing. Could a cleverly packaged plug-compatible-based "data base machine" successfully capture this let's-do-it-ourselves urge? At least one independent DBMS vendor is attempting just that, albeit with limited success thus far.

A definition of data base machine that depends on the user's perception of the data processing "problem" takes us far afield of technological considerations. However, as a statement on "data base machine" thinking at the mainframe level, perhaps it is an apt final comment.

In truth, the data base machine topic at the mainframe level — in terms of current commercial directions — is considerably less than overpowering. Good, solid and important improvements in the cost/performance of generalized hardware still hold sway and no substantial change is apparent on the immediate commercial horizon.

The Mini/Maxi Environment

Here there is room for considerable excitement. Not only is data base technology much younger — and thus more open to innovation and marketing adventure — but an important test case is taking place in the market today: Britton-Lee, Inc.'s IDM-500 data base machine, introduced last year.

Before examining that experiment more closely, let us review several distinct features of the mini/maxi marketplace that are worth noting. For one thing, the data base market is considerably younger than its mainframe counterpart. In terms of the market "window" for new product entries, the mini/maxi market is probably just

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about at the point where the mainframe data base market was in 1973-74. In other words, the window is still open, though perhaps rapidly closing.

The quality of recent new products has been good. This undoubtedly reflects the accumulation of at least five years of mini/maxi data base experience, as well as the availability of more than a decade of mainframe experience to draw on.

The bottom line is that independent innovators in the mini/maxi marketplace still have a chance to hit the marketing track with breathing room — not at the dead run that would be imperative for the mainframe marketplace.

Another important distinction in the mini/maxi marketplace is that many customers are already accustomed to multivendor hardware configurations. Built-in multivendor phobias are much less a factor than in the mainframe environment.

Finally, in the mini/maxi marketplace there exists a whole host of OEM companies and sophisticated users who are technically much better prepared to exploit hardware cost/performance advantages (say, from a back-end data base machine) that would be too small to excite active interest in the mainframe arena. These same people, incidentally, can be counted on to supply any features a new offering might be lacking — in particular, at the front end.

All these factors combine to make the mini/maxi environment a much more favorable setting than the mainframe environment for the emergence of specialized data base processors like the Britton-Lee IDM-500.

Hardware specialization in the IDM-500 centers on the Data Base Accelerator Board, which provides special hardwired circuitry for fast reads of disk access buffers in parallel with other "regular" processing.

The IDM-500, as well as the smaller IDM-200 (which does not contain the accelerator), features a relational DBMS. This "relational" capability is important since it avoids the deficiencies of traditional DBMS approaches, as mentioned above, for data base machine operation.

In Britton-Lee's view, no processor is a data base machine unless it definitely contains hardware specialization (any amount will do). The functional aspect, in its view (that is, the processor is performing the special function of data base management on a node in a distributed network) is not the deciding factor.

Given Britton-Lee's emergence in the marketplace and assuming its continued business success, any function-based challenger to its de facto data base machine definition would probably find it difficult to make a case. On the other hand, Britton-Lee's failure would be an important signal to other potential vendors of specialized machines (several are probable) that rethinking of data base machine definitions, if only for market survival, would definitely be in order.

One concluding comment before moving on: By many measures, the IDM-500 is actually limited in the amount of hardware specialization it offers. It uses conventional disk drives, contains no content-addressable storage, has no microcoding for special DBMS routines and sports no processor parallelism on a large scale. Certainly any or all of these things would have been technically possible.

But what about economically? A look at the machine in this light suggests the existence of a cost/performance squeeze even in the mini/maxi environment. Perhaps it is a different kind of squeeze from that in the mainframe environment — but a squeeze nonetheless.

In five or 10 years, a new generation of data base machines may make the Britton-Lee machine appear primitive. Nonetheless, because of its first-in-the-marketplace hardware specialization — and its use of the relational model to support access operations — it is indeed a significant and exciting technical and marketing experiment and one that should be watched very closely.

Office Automation

The office automation arena may be at the small end in terms of appli-

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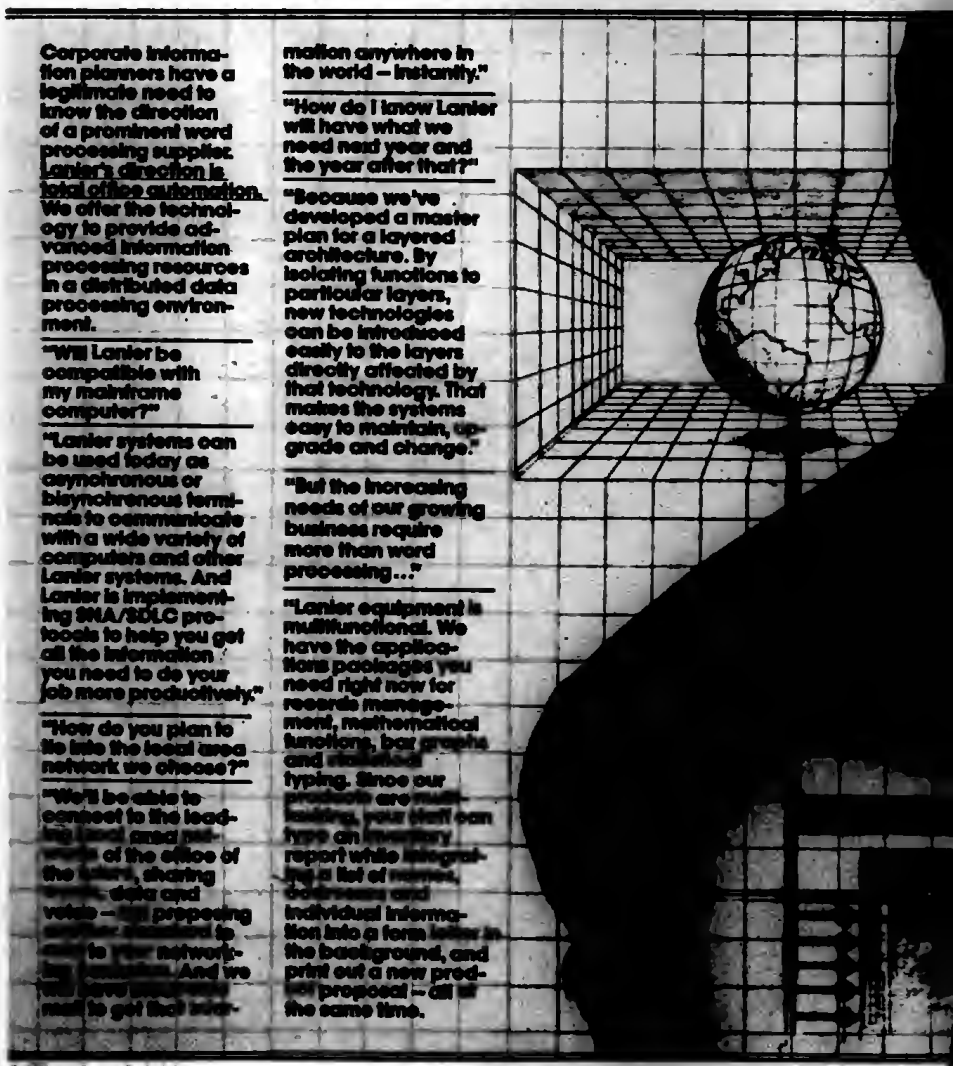

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cation size, but in terms of potential *market* size, "small" does not apply at all. You only need to look at some of the principal players in this marketplace — Xerox Corp., DEC, Intel, IBM and so on — to realize that something really big is afoot.

The main characteristic of the office automation marketplace at the moment is that it is wide open. There are virtually no preexisting market constraints facing the innovative vendor.

The main characteristic of the office automation marketplace at the moment is that it is wide open. There are virtually no preexisting market constraints facing the innovative vendor.

In fact, the potential product developer is at a tremendous advantage. Since the predicted marketplace is huge, he is likely to have proportionally large research and implementation budgets backing him up. If he is developing data management products, he can draw from more than 15 years of practical, hands-on experience with DBMS and data base applications in selecting optimum approaches. Within reason, he can and must be as innovative as possible.

There is only one real constraint: The system he produces must be relatively cheap. Performance (while not unimportant) is definitely secondary to price. He can count on selling a lot of systems, but each individual unit must be cheap.

All these factors are evident in what is probably the first among many data base products for the office automation market, Intel's IDBP data base processor, introduced in March of this year. Intel's approach is interesting in a number of respects.

First of all, like Britton-Lee, Intel portrays its processor as a "black box" for data base management, even though, unlike Britton-Lee, its "box" contains no hardware specialization, which serves to keep costs low. Actually, this fact is surprising for a company like Intel, and one would suspect, if the product proves successful, that the situation is bound to change over time.

In any event, the IDBP currently represents a data base machine whose claim to that title is based solely on function, not hardware specialization. In a sense, this brings us full circle to the mainframe arena, where the distributed movement tends to see DBMS processing nodes in a network as "data base machines."

But Intel will probably be successful at the very strategy that will not work at the mainframe level — that is, packaging a DBMS in an independent processor and selling it as a ready-to-use data base machine node. This points toward fundamental differences between distributed mainframe networks and local-area (office automation) networks. Not the least of these differences is the fact that in the latter, specialization of function is already an accepted fact of life, whereas in the former, every node is still seen as generalized or very nearly generalized — if not in actual function, then at least in potential functionality.

New Data Base View

Intel's ideas in this regard are interesting, if not revolutionary. Its view is that data base capability can be sold as a packaged commodity, a "raw" product that other vendors can pick up and use to build "finished" user-visible systems. Consequently, Intel sells its IDBP only to OEMs. The Intel division that sells IDBP reports that it has no intention of producing actual end-user products itself.

At the mainframe level, the equivalent would be for IBM or Cullinane to say that it would sell inaccessible IMS or IDMS systems to third parties, who would first build add-on access facilities, then resell the complete data base system package to user companies. These companies

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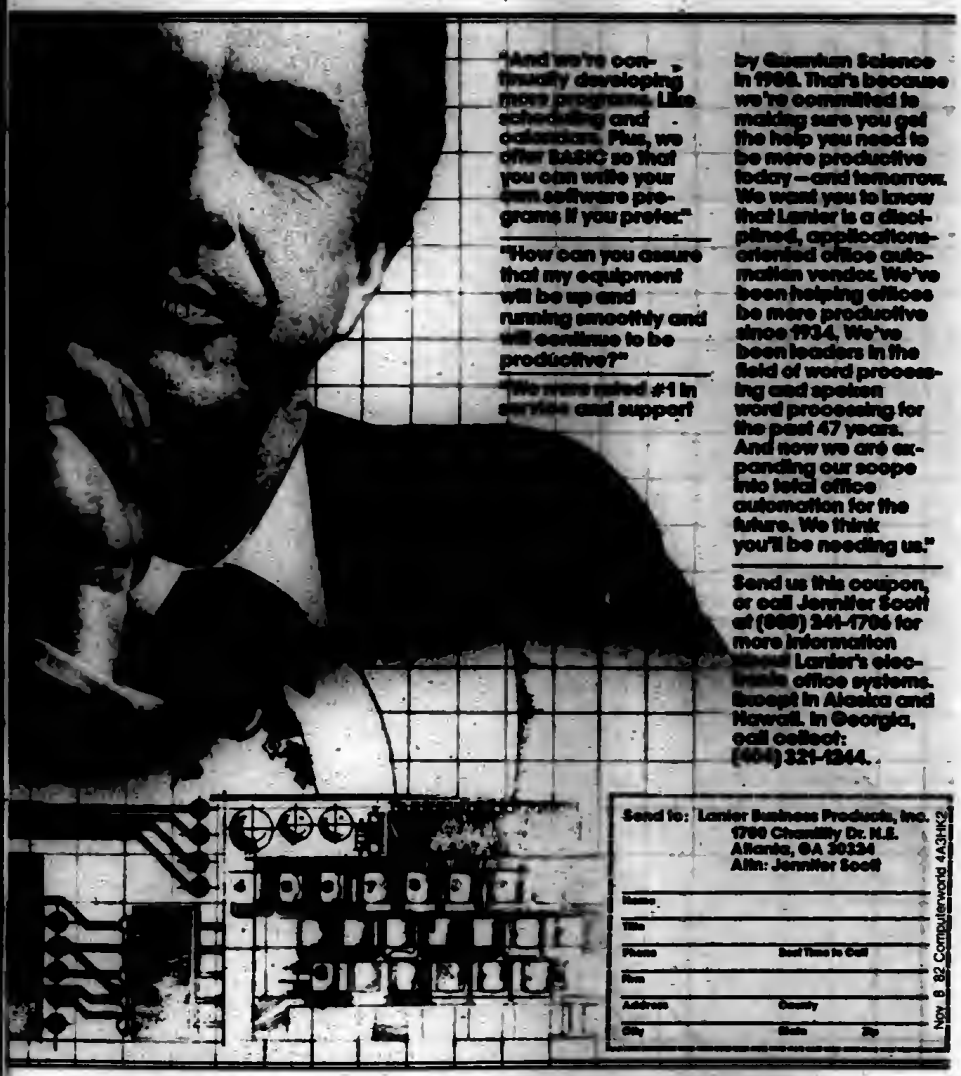

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IN DEPTH

would never deal with IMS or IDMS directly, but only through the add-on access facilities.

Partly, this approach simply reflects the fact that a black box data base machine cannot control the access language(s) used on the separate front-end hosts. (Britton-Lee's offering is the same in this particular regard.) But there are more subtle aspects to the issue as well.

First of all, Intel would argue that this commodity-based marketing approach indicates that data base technology has "come of age" and that innovators can better spend their time developing a new level of software capability "on top" of the data base capability. This is certainly a potent way to view the data base "problem" for the office automation environment — or, for that matter, any environment where data base is required.

Second, the once-removed scenario of data base usage — the provision of capability through value-adding third parties — seems to indicate that it is function, not hardware, that is of primary concern to the data base machine equation.

Could the office automation arena significantly influence data base machine thinking in that direction? The answer should prove interesting.

Another interesting note is that the IDBP — like the IDM-500 — uses the relational approach. Both machines are likely to serve as significant proving grounds (in unanticipated areas) for that important area of innovation.

Breaking Ground

But the IDBP is breaking its own new ground as well: It supports both "pointer" data items (for OEMs who might want to build linked-list or pointer-based networks or hierarchies) and "string" pointer data items (to "point" to textual data, as in memos, letters, binary representations of drawings and so on).

To complement the latter, it also offers content-searching capability for textual data access. This is especially important since textual data takes on significant dimensions in office systems.

Again, in five or 10 years, the IDBP may look primitive in retrospect. Right now, however, it provides ample evidence of the explosive innovation now taking place in the office automation data base arena.

What Lies Ahead

Despite the absence of even basic agreement over the meaning of the term "data base machine," industry interest in the concept seems to be growing. The expansion in mainframe DDP capabilities, interesting marketplace experiments such as those by Britton-Lee and Intel and ongoing laboratory research and development all seem to ensure that this trend will continue.

What final conclusion should one draw, given all these trends and evolving marketplace constraints? The most appropriate one is probably that it is much too soon to draw any definite conclusions about data base machines. The concept must be watched with patience.

Significant and undoubtedly surprising innovation is surely on the way, but at the moment, it is not clear that such innovation will instantly unify data base machine thinking across all relevant segments of the industry. Indeed, from today's perspective, such unification appears years — perhaps even a decade — in the future.

About the Author

Ronald G. Ross is editor of the "Data Base Newsletter," an independent publication for data management professionals. He is also a principal in Database Research Group, a trends and technology research company based in Newton Lower Falls, Mass., which publishes the newsletter.

Ross has written numerous articles and books on data base and related topics, including Data Dictionaries and Data Administration *and* Data Base Systems: Design, Implementation and Management, *both published by Amacom, American Management Associations, New York.*

He holds a B.A. from Rice University and an M.S. from the Illinois Institute of Technology.

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Pilot Study Program Aimed at Top Execs

LA JOLLA, Calif. — Management development in the '80s might take on a new look if a pilot program from the Western Behavioral Sciences Institute (WBSI) achieves widespread acceptance.

The goal of the program is to augment or even replace traditional management education with a computer communications network that has worldwide access to a central data base. "High-level executives don't have time to go away to training/education sessions," explained Darrel Icenogle, director of educational resources for WBSI's School of Management and Strategic Studies. "Unlike Harvard University's advanced management program, we're trying to give people a social science and humanity perspective on management problems."

Under the two-year program developed by WBSI's School of Management and Strategic Studies, the pilot class of corporate executives was given its own Apple Computer, Inc. Apple II microcomputer; an Anadex, Inc. DP-9001 printer; and a Hayes Microcomputer Products, Inc. Microcomodem II. They were then taught how to use the system at an eight-day seminar here. In between the ongoing seminars, given every six months, the executives use the computer system in their own office environments or at home.

Providing Copy for WSBI's Remotes

As used by the WBSI system, the electronic messaging system is a group syn-

(Continued on Page 84)

Device for Dial-Up Data Bases Arrests Unauthorized Access

SAN FRANCISCO, Calif. — Leemah has announced a microprocessor-controlled security device that reportedly blocks unauthorized access of a dial-up data base when located between a modem and a telephone network.

Called the Secure Access Unit (SAU), the device is reportedly more effective than an encryption system because it does not involve passwords, which may be decoded by systematic telephone number dialing and code generation.

The unit answers all incoming calls to a data base and provides call-back access to those who enter the correct codes from authorized locations, the vendor said.

Within an average of 30 seconds, the SAU reportedly answers a call without emitting an acknowledgment tone, and the caller inputs a six-digit Location Identification Number. The SAU then emits an acknowledgment tone and disconnects. If a valid code is not received, the SAU disconnects, even if the caller does not hang up.

After receiving the code, the SAU searches its directory for the telephone of the authorized location and calls back.

A standard SAU with 16 call-back locations costs $975, the vendor said from 729 Filbert St., San Francisco, Calif. 94133.

Terminal Designed To Reduce Fatigue

TeleVideo Systems Model 970

SUNNYVALE, Calif. — A terminal designed to minimize operator fatigue has been announced by Televideo Systems, Inc.

The Model 970 features an oval-shaped enclosure with a 14-in. CRT screen, detachable keyboard and side-mounted electronics said to maximize their reliability. A silent ventilation system in the side enclosure releases heated air at the top of the side-mount, the vendor said.

The CRT features black letters on green phosphor, easy-to-read matrices, a jitter-free picture and oversize characters. The screen is also said to be easily tiltable.

The top-of-the-line terminal costs $1,495 from the firm at 1170 Morse Ave., Sunnyvale, Calif. 94086.

Net Concentrator Works With SDLC Units

CHERRY HILL, N.J. — Infotron Systems Corp. has introduced a network concentrator for use with terminals employing IBM's Synchronous Data Link Control.

The Infotron 790 concentrator reportedly can be configured in various multipoint network arrangements with other 790 units and with the company's Supermux 480, 616, 632, 680 and 780 statistical multiplexers. It can accommodate up to 640 inputs in any combination of synchronous and asynchronous, dial-up and dedicated, at speeds to 9,600 bit/sec.

The network concentrator is available for approximately $19,000 from Infotron Systems, Cherry Hill Industrial Center, Cherry Hill, N.J. 08003.

Communications Technologies Fuel Demands for Improvement

By Mark Strangio
Special to CW‡

As communications technologies increase in importance to organizational success, gains in productivity that can be attributed to the new technologies will in turn fuel demands for further improvements. The potential gains include decreased hardware costs, improved local and wide-area communications, the virtual elimination of repetitive and tedious tasks and improvements in man-machine interfaces.

Conventional data communications network topologies and component integration will be increasingly affected by the proliferation of distributed or decentralized data processing (typically driven by the applicability of this technology in key areas and user purchases of small computers), the integration of non-data processing functions within the data communications network and the incorporation of application-independent teleprocessing and resource-sharing/switching systems.

These forces will, of course, affect network topology. Increasingly, the conventional network will consist of a mainframe, multiple mainframes at the central site or multiple mainframes at multiple sites supporting multiple distributed minicomputer systems. These processors will, in turn, support multitiered (second, third and fourth level) multiplexed, point-to-point and multipoint circuits. Relative hardware and software compatibility is necessary as is compatibility with integrated subsystems that observe or monitor, control and manage the network, no matter how complex.

The subsystem must also provide a high degree of functionality while remaining transparent and nondisruptive to the primary network function. The integration of such technologies as electronic mail/message switching, digital facsimile transmission and/or previously nondigital communications systems or functions (such as voice) will also influence network

(Continued on Page 86)

Package Assists Lay Out Of Leased-Line Networks

NEW BEDFORD, Mass. — Le Roux International, Inc. has announced a software package said to assist in laying out leased-line networks.

Called Optinet, the product uses location and traffic data supplied by the user to determine a multidrop network that minimizes monthly line charges while satisfying user-specified drop and traffic limits.

An analyst can select city coordinates from a predefined set of 212 major U.S. cities or create additional coordinates. The city set may be saved for running "what if" situations or for altering variables.

Optinet incorporates AT&T's interstate tariffs and provides space for the user to enter other tariffs.

Optinet requires an Apple Computer, Inc. Apple II computer with 48K bytes of memory and will soon be available on the IBM Personal Computer, a spokesman said. The package costs $599 with an optional annual maintenance fee of $150 from Le Roux at 3090 Acushnet Ave., New Bedford, Mass. 02745.

Graphics Units Mimic VT100s

ATLANTA — Colorgraphic Communications Corp. has announced two color graphics terminals that reportedly emulate Intelligent Systems Corp.'s Intecolor 8301G and 8001G and Digital Equipment Corp.'s VT100 and VT52 terminals.

The MVI-100 Model 813 has a 13-in.-line preconverged high-resolution tube in a free-standing cabinet, the company reported. The MVI-100 Model 819 has a 19-in. tube packaged in a metal cabinet that is suited for standard 19-in. rack mounting.

Both terminals reportedly contain graphics primitives for arcs, circles and geometric fills. Other features include vertical and horizontal scrolling, four split screens and transparent mode for software development.

The Model 813 costs $3,000 and the Model 819 costs $3,500 from Colorgraphic at 2379 John Glenn Drive, Atlanta, Ga. 30341.

System Emulates VT52s, HP 2600s

LOS ANGELES — A terminal emulator and file transfer system said to communicate with any remote or in-house computer has been announced by Inner Loop Software.

The Video Display Terminal Emulator (VDTE) emulates the Hewlett-Packard Co. HP 2600 series and Digital Equipment Corp. VT52 terminals, supporting high-resolution vector graphics plotting sequences, the company said. The emulator is written in assembly language especially for the IBM Personal Computer, with 10 speeds including 300-, 1,200- and 9,600 bit/sec, the vendor claimed.

VDTE is priced at $50 from Inner Loop Software, P.O. Box 45857, Los Angeles, Calif. 90045.

Videotapes Cover Communications

CHAMPAIGN, Ill. — Three color videotapes designed to teach non-technical personnel how to install data communications equipment, understand its operation and diagnose problems are available from Data Communications Brokers, Inc.

The tapes are "Modem Installation," "The RS-232 Interface" and "RS-232 Cable Making." Playable on a standard .5 in. Beta or VHS video cassette recorder and television, the tapes cost $150/tape or rent for two weeks at $30/tape, from 3000 Research Road, Champaign, Ill. 61820.

Performance Analyzer Based on Zilog Z80 Micro

SALT LAKE CITY, Utah — Questronics, Inc. has announced a communications line monitor, analyzer and hard-copy printer that reportedly identifies statistical information in over 70 categories of line utilization and transaction response time information.

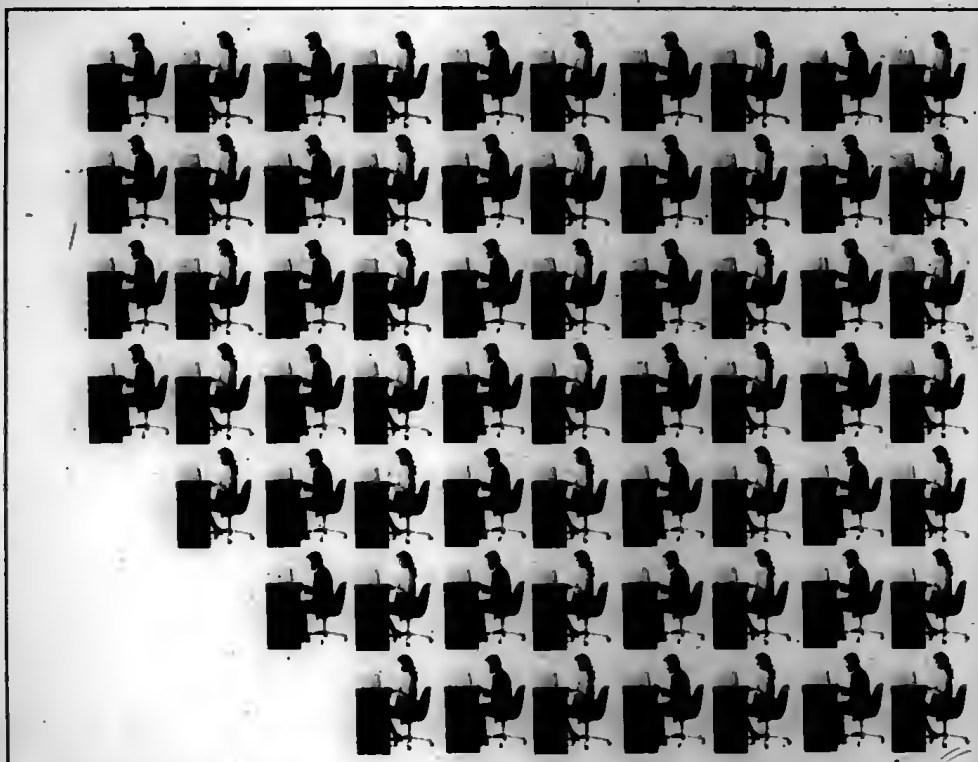
The Model CPA/7 Communications Performance Analyzer can monitor all transactions or one specific transaction by identification type at one of three logical levels within the communications link, a spokesman said.

These include an all-stations level with up to 1,024 addresses, a cluster control unit level and a local unit level, the vendor explained.

The Zilog, Inc. Z80 microprocessor-based unit supports IBM 3270 bi-synchronous and 3270 Synchronous Data Link Control/Systems Network Architecture protocols in the same unit.

The CPA/7 can also monitor and report all transactions on a data line, the identification of each, access frequency, cluster control unit and device addresses for every transaction, the company claimed.

The analyzer costs $5,450 alone or $6,300 with a printer from Questronics at 3565 S.W. Temple, No. 5, Salt Lake City, Utah 84115.



0 to 60 without shifting

Protocol Converter Allows IBM 3278, 3280 Emulation

TORRANCE, Calif. — Local Data, Inc. has introduced a protocol converter said to allow up to nine low-cost asynchronous Ascii terminals and printers to emulate IBM 3278 terminals and 3280 series printers.

The Datalynx/3274 appears to an IBM host as a remote IBM 3274 cluster controller and reportedly allows Ascii dumb terminals to emulate all 3278 functions including program function keys, protected and unprotected fields, insert, delete and erase.

The converter is available in five-, seven- or nine-channel units. The asynchronous channels may be configured to support any mix of CRTs and printers, a spokesman said, including all common asynchronous CRTs and printers.

The converter is available for $666 from Local Data, Suite 706, 2701 Toledo St., Torrance, Calif. 90503.

Micom Adds to 4000 Modem Line

CHATSWORTH, Calif. — Micom Systems, Inc. has announced 4,800- and 9,600 bit/sec additions to its Micro 4000 line of modems.

The new models, the 4048/V.27+ and 4096/V.29+, feature user-selectable speedshift training. The speedshift feature allows variable transmission rates to increase throughput.

The Model 4096/V.29+ has fallback operating speeds of 7,200- and 4,800 bit/sec. The Model 4048/V.27+ supports fallback operation at 2,400 bit/sec, the vendor said.

The Model 4048/V.27+ costs $2,595. The Model 4096/V.29+ costs $3,095. Both modems will be available in January, the vendor said from 20151 Nordhoff St., Chatsworth, Calif. 91311.

Time Division Multiplexer Out for Fiber-Optic Systems

CHATSWORTH, Calif. — Phalo Corp.'s Optical Systems Division has introduced a time division multiplexer for its fiber-optic systems line of products. The product applications are intended for computer-to-terminal link, secured communications link and links between process control equipment.

The Model OMX-9600 asynchronous/synchronous time division multiplexer features a plug-in module that is compatible with RS-232C standard data communications equipment.

The multiplexer provides eight full-duplex channels and can be expanded to 64 channels by adding extension units, the vendor said.

It will support data rates up to 19.2K bit/sec on each input channel, selectable from 300 bit/sec to 19.2K bit/sec.

The eight-channel multiplexer is available for $2,700 from Phalo Corp., Optical Systems Division, 9240 Deering Ave., Chatsworth, Calif. 91311.

Smart Modems Get Price Cut

ROCHELLE PARK, N.J. — Timeplex, Inc. has reduced the prices of its Advanced intelligent Modems (AIM) by more than 15%.

Prices were reportedly decreased due to lower material costs and production efficiencies implemented by the firm.

The AIM 9,600-bit/sec modem was reduced by $500, bringing the desktop unit down to $2,825 and rack-mounted card version to $2,675. The desktop AIM 4,800-bit/sec modem dropped $400 to a price of $2,000. The card version also dropped $400 to $1,850.

The AIM 2,400-bit/sec unit remains unchanged at $1,050 for the desktop unit and $900 for the rack-mounted version. All AIM modems operate over four-wire voice-grade private lines without the need for special conditioning.

The firm is located at One Communications Plaza, Rochelle Park, N.J. 07662.

Interface Avoids Use of RS-232C

WOODLAND HILLS, Calif. — A connecting interface from Protocol Computers, Inc. is said to permit the use of existing RG-62 coaxial cable, giving firms the option of avoiding the installation of RS-232C.

Coaxface reportedly serves as a connection between RS-232C links and IBM coaxial cable and is an option available to users of the firm's 1076, 1071 and 1051 protocol converters.

Coaxface is said to be less expensive than RS-232C installations and is not subject to EIA specifications limiting RS-232C to 50 feet. At the same time, up to 5,000 feet of coaxial cable can connect between the two Coaxface units with no data loss, according to the vendor.

Coaxface costs $150/pair from the firm at Suite 107, 6430 Variel Ave., Woodland Hills, Calif. 91367.

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3. AM 1042 (winchester)	32MB	2.4GB	512KB	3MB	2	26	A	B	AMOS*
4. AM 1062 (winchester)	60MB	2.4GB	512KB	8MB	2	68	A	B	AMOS*

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Converter Fits System/34, 38

WOODLAND HILLS, Calif. — A protocol converter said to allow direct communication between personal computers and terminals and IBM System/34 and System/38 has been developed by Automated Training Systems, Inc. (ATS).

The ATS 1051 is said to require no modifications of equipment or programs. About the size of the Los Angeles Yellow Pages, the unit reportedly can be up and running in 30 minutes.

A one-port version costs $3,100; a three-port version costs $4,500; a five-port version costs $5,800; and a seven-port version costs $7,000. ATS is located at 21250 Califa St., Woodland Hills, Calif: 91367.

Signal Offers Packages for PDP-11, VAX

GOLETA, Calif. — Signal Technology, Inc. has introduced two software packages for Digital Equipment Corp. hardware — a signal processing package and an analog-to-digital conversion package.

The Interactive Laboratory System can be used on both 16-bit and 32-bit versions of Bell Laboratories Unix on DEC PDP-11 and VAX computers. It is an organized set of approximately 80 programs used in the analysis of various types of signals, such as heart sounds, speech, radar and sonar reflections.

The package is available for between $7,800 and $20,000.

The Data Acquisition and Conversion System (Dacs) is designed for analog-to-digital and digital-to-analog conversion directly to and from disk files and to interface to DEC's LPA 11K Laboratory Peripheral Accelerator.

This package is a set of Fortran main programs and callable subroutines for analog-to-digital conversion.

Dacs is available for $4,000. More information on both of these products is available from Signal Technology, Inc., 59SI Encina Road, Goleta, Calif. 93117.

WBSI Offers Management Education Plan

(Continued from Page 79)

chronous communication method one hour per week, where participants type their communications into computer terminals, connected via telephone lines to a central data base. These communications are stored in the computer and organized to allow typewritten conversations between members of the network. The remainder of the week the "students" receive their required reading over the terminal and asynchronously communicate with the rest of the "class."

The system is part of the Electronic Information Exchange System located at the New Jersey Institute of Technology in Newark, N.J. Individual computer-printer-modem systems are interconnected by GTE Telenet Communications Corp.'s Telenet and United Computing Systems, Inc.'s Uninet packet-switching networks to the Exchange system. The data packet network is currently configured for 64 simultaneous users and can be expanded to 108 users.

Computer equipment at the Newark-based Exchange consists of a Perkin-Elmer Corp. 3230 minicomputer with 2M bytes of main memory and four 300M-byte disk drives.

"When we started the program, we were concerned about the 'coldness' of the computer," Icenogle said. "However, we found that in about a month, the computer interface became relatively 'transparent' to the users. Their personalities came through and we could recognize within a few statements who was 'talking.' "

Personal Method

Icenogle admitted that telephone conference calling is a more personal method of communicating, "but there are serious limitations to this form of communication," he maintained.

"It is extremely difficult for busy executives to find regular times for conference calls," because of different time zones and irregular schedules.

"The advantage of computer teleconferencing is that the most important kinds of communication can occur asynchronously . . . a person can check in at a convenient time, retrieve any communication that has occurred to date and compose a response. One never has the feeling of imposing on another's time because communications are sent and received at times of personal convenience."

Icenogle pointed out that the initial communication is over the CRT display, but said the best way to study the information is in hard-copy form.

The Anadex printer used in the system provides 120 to 200 char./sec at 10 and 16.4 char./in., respectively. It is capable of double-width printing as well as graphics with a resolution of 75 dot/in., horizontally, and 72 dot/in., vertically.

Communications control of the printer includes the setting of forms length, tabbing and space skipping. Interfacing methods include parallel and serial protocols.

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Over Restrictions on Tymshare

Commerce Files Complaint With Japanese

WASHINGTON, D.C. — KDD, Japan's international communications carrier, has placed "unnecessary restrictions" on the remote DP services which Tymshare, Inc. offers in Japan, according to a complaint filed by the Commerce Department with the Japanese government earlier this month.

The dispute is part of a worldwide battle involving several foreign telecommunications administrations. Some observers say these administrations want to protect their domestic computer industries; others argue that the carriers are making their international private-line services more expensive and harder to use because they need more money to finance new, computer-based services and are seeking more customers to support new public data networks.

The Tymshare-KDD dispute goes back to 1976, when the carrier asked the remote DP services company to handle all work received from Japan at a single U.S. computer center. Tymshare says this prevented it from offering about two-thirds of its services in Japan.

In 1980, KDD agreed to lift this restriction but imposed some others: All jobs received from Japan would have to be "preprocessed" at a common Tymshare site in the U.S. before they could be transferred elsewhere, and all Japanese customers would have to be accommodated through a separate network.

DTSI Files For Dems

WASHINGTON, D.C. — The ninth company to win authorization as a Digital Electronic Message Service (Dems) carrier was announced by the Federal Communications Commission (FCC) last week. It is Digital Termination Service, Inc. (DTSI), based in Austin, Texas.

DTSI plans to serve 21 cities, including Los Angeles, San Francisco, Denver, Atlanta, Chicago, Indianapolis and New Orleans.

So far, a total of 37 applicants have requested FCC permission to establish Dems networks, which consist basically of terrestrial or satellite intercity circuits, frequently leased from others, connected to a microwave system in each city served.

ASA Adapter Unveiled

DAYTON, Ohio — Digital Controls Corp. (DCC) has introduced an asynchronous-to-synchronous (ASA) adapter which is said to allow users of dumb terminals to utilize high-speed synchronous modems in dial-up applications.

The 9373 ASA is a microprocessor-based device that allows asynchronous terminals to operate in a dial mode at speeds up to 4,800 bit/sec. The adapter costs $395.

Digital Industries, Inc., a subsidiary of DCC, has introduced its second-generation 3403 Peripheral Switch, said to switch data channel peripherals on IBM and plug-compatible processors. The switch is available for $1,875.

Both Digital Controls Corp. and Digital Industries, Inc. are located at 2779 Orchard Run Road, Dayton, Ohio 45449.

Controller Fixes Errors

SUNNYVALE, Calif. — Racal-Vadic, Inc. has announced an error controller which reportedly detects almost every possible error and corrects them with Automatic Request for Retransmission of Data (ARQ).

The VA845E/VA855E controllers — one remote, one central — are intended for full-duplex applications which operate asynchronously at 110, 300, 1,200 and 2,400 bit/sec. The data communications channel can operate asynchronously at the same rate or synchronously up to 2,400 bit/sec, giving users increased throughput, according to the vendor.

Unit price of the controller package is under $600, a company spokeswoman said from 222 Caspian Drive, Sunnyvale, Calif. 94086.

GEN. II Fits Lear ADM Units

SACRAMENTO, Calif. — Digital Engineering, Inc. has announced that its GEN. II Retro-Graphics terminal enhancement can now be used on ADM-3A, ADM-3A+ and ADM-5 dumb terminals manufactured by Lear Siegler, Inc.

The GEN. II Retro-Graphics enhancement features emulation of Tektronix, Inc. 4010 series graphics terminals and simulation of the Tektronix 4027 color graphics terminal. Available on a printed circuit board, the GEN. II Retro-Graphics enhancement is powered by an 8-bit microprocessor and features a monochrome screen resolution of 640 by 240 pixels, the vendor said.

The enhancement costs $1,095, the vendor said from 630 Bercut Drive, Sacramento, Calif. 95814.

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Technologies Fuel Demands for Improvements

(Continued from Page 79)

architectures. As the integration of voice and data networks becomes increasingly important, speech-digitizing technology will improve and the use of microwave and satellite communications facilities will become more widespread.

Evolving data communications hardware and software will primarily focus on modulation products (modems), network technologies (advanced statistical multiplexing, concentration and circuit-switching), carrier systems and network management and control systems.

The trend in component technology (for example, large-scale integration [LSI] and very large-scale integration [VLSI] components) has been toward markedly decreased unit costs. The great demand, low supply and high manufacturing costs of advanced microprocessor chips (such as the 16-bit microprocessor), however, make it likely that there will be a diminution in the rate of decline. Similarly, the demand for modifiable software will drive up the costs and exacerbate the many problems of development. The advantage to the user of this trend lies in the greater use of standardized software and ability of software documentation.

Technological changes and/or trends in modulation products are likely to be implemented in several ways. High-, medium-, low-speed and short-haul modems will be increasingly integrated with, and central to, network monitoring, testing and control functions. Device functionality in monitoring and testing analog and digital parameters and interfaces will become paramount. Device and circuit backup and restoration from a central control point will be essential when component failure means large revenue losses.

Combining custom LSI, VLSI and microprocessor technologies, will provide devices that are more expensive to develop, less expensive to manufacture and simpler to modify. These modems will be able to implement more sophisticated algorithms and operating modes. Modem programmability will permit the accumulation of application-specific as well as standard performance data.

Network management and control will continue to be a most interesting and complex issue in view of the tremendous functional differences among the available network control technologies. Philosophies also vary radically as to the purpose, residence (external or internal to the host) and responsibility of network management and control.

The following changes or trends are likely in the field of network management and control:

- Intelligence will continue to be distributed to network devices (modems, multiplexers, nodal processors) and will serve the control and management function.
- More sophisticated surveillance or monitoring of digital and analog parameters will lead to faster identification and resolution of component malfunctions.
- Network components will be evaluated on their ability to complement the control and management function.
- Remote switching and backup capabilities will become common in point-to-point, multipoint and multitiered configurations.
- Equipment and circuit performance data will become more central to design and planning.
- Simplifying the operator interface will be stressed.

To deal effectively with the trends and changes described here, it is absolutely essential for users and data communications managers to be aware of what the market offers and what their organization's plans are.

This article has been excerpted from "Trends in Data Communications Technology" (portfolio No. 50-01-16) by Mark Strangio, Codex Corp., Mansfield, Mass. The portfolio appears in Auerbach Data Communications Management *and is reprinted with permission. ©1981, Auerbach Publishers, Inc.*

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Rolm Introduces Ada Work Center, Compiler, ADE

SANTA CLARA, Calif. — Rolm Corp. has unveiled an Ada work center, which consists of a multiterminal 32-bit computer system, and an Ada compiler and Ada development environment (ADE) based on the Department of Defense's specifications for the Ada language.

The system reportedly can support from eight to 128 simultaneous users in the development of Ada language applications. The Rolm Ada work center is an integrated package consisting of hardware, software and technical support for users wishing to get started with Ada for program design, application development or Ada training.

ADE, Rolm's integrated set of soft-

(Continued on Page 92)

Benefits Firm Upgrades CDC Omega to IPL CPU

NEW YORK — A benefits consulting firm here is the first user to field-upgrade a Control Data Corp. Omega 480 Model 3 processor to an IPL Systems, Inc. CPU.

No longer marketed by CDC, the Omega was produced in the early '70s by IPL and sold by CDC as an IBM-compatible processor aimed at IBM's 4300 line of processors.

"It's our charter to develop software for employee benefit programs for large companies throughout the world. Our packages are designed to run in IBM DOS and OS environments. So the hardware that we use for development must be transparent to IBM hardware," explained Bill O'Keefe, vice-president of the Computer Division at Woodward, Ryan, Sharp & Davis, Inc..

The firm recently became the North American subsidy of a larger consulting firm, Nobel Lowndes Group.

As a result of the merger, the firm's work load increased and more computing power was needed to handle it. The firm makes financial software, including the Automatic Customer Entry System (Aces) package for medical and dental claims processing.

Selling the CPU

O'Keefe said the firm had already ordered an IBM 4341 Model Group 2, but the upgrade involved selling the Omega processor.

"The 4341 was an expensive and time-consuming alternative. IPL offered to upgrade the Omega to an IBM 4443 and sell us another 4443. It was the proverbial offer that couldn't be refused," O'Keefe explained.

Now, O'Keefe said, the firm has a 4M-byte 4443 processor (the upgraded Omega), which is used for batch processing and as a CICS test system. The second 4443, a 6M-byte processor, is used for general production CICS networking operations.

On-Site Conversion

IPL had never done an on-site Omega-IPL conversion before, and O'Keefe expected there would be problems. As a precaution, the 4443 processor was installed first — a process that took about four hours, O'Keefe said.

"The Omega conversion took about the same amount of time and was flawless," O'Keefe said.

Even though the Omega processor was manufactured by IPL, O'Keefe said CDC maintained the machine until it was transformed into an IPL 4443.

At that point, IPL took over servicing the processor, O'Keefe said.

Designed for Engineers

Megatek Color Graphics Unit Out

SAN DIEGO, Calif. — A color graphics terminal designed specifically for engineers has been introduced by Megatek Corp.

Designated the Whizzard 1650, the new device is expected to be the first in a series of graphics terminals to be announced by the company and aimed at the medium-priced desktop market.

According to Megatek, Digital Equipment Corp. VT100/52 compatibility allows users to perform functions such as software development and debugging, report and documentation generation.

"The Whizzard 1650 is specifically designed for engineers and brings the power and functionality of our high-end systems to their desks," Peter Shaw, Megatek president, said. "This product positions us in the mid-range graphics terminal market. The market needs a replacement to storage tube technology. Our product is an attempt to plug the hole in the market," he added.

Same Design Concepts

The architecture of the 1650 follows the same design concepts used in other Megatek Whizzard products.

According to the company, each 1650 utilizes an 8-MHz Intel Corp. 8086 microprocessor as the graphics processor and employs display list processing techniques. An Intel 8085 microprocessor is used as a keyboard/peripheral processor.

Megatek claimed the display list architecture provides capabilities for real-time manipulation of screen graphics with minimum host intervention. An engineer can execute, the company claimed, functions such as real zoom or scale, translate, clip, rotate, pick or polygonal fill on the screen without calling for extensive host computer interaction.

The company explained that diagnostic capabilities are included in the product, which can be run locally or by the host computer.

Priced at $15,900, volume production of the 1650 is scheduled to begin in January. Deliveries are currently quoted at 90 days, according to the vendor at 3931 Sorrento Valley Blvd., San Diego, Calif. 92121.

Versatec Announces Controllers For IBM 370-Era Software Users

SANTA CLARA, Calif. — Versatec, a Xerox Corp. company, has announced two on-line plotter controllers, the 780-13 and 780-11, for users of IBM systems running 370-era software.

The 780-13 is a compressed raster controller that accepts block raster, compressed raster and Ebcdic print formats. The 780-11 accepts unordered graphic data in Versatec's random format.

It also accepts ordered vectors, the vendor said.

Both units operate on an IBM block, byte or selector channel under standard IBM 370 operating systems. Both models emulate IBM's 3211/3811 printer/controller subsystems.

The units connect to IBM channels via a standard IBM 360/370 bus and tag cable, the vendor said.

The 780-11 costs $20,000 and the 780-13 costs $12,000, the vendor spokesman said from 2805 Bowers Ave., Santa Clara, Calif. 95051.

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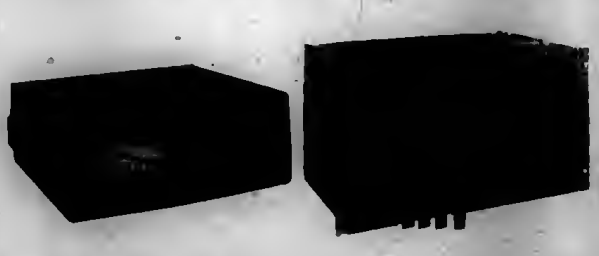

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Based on Motorola 6809 Micro

Information and Retrieval System Bows

LAWRENCEVILLE, N.J. — Mnemos, Inc. has announced the System 6000, a microprocessor-based information and retrieval system.

Based on the Motorola Corp. 6809 microprocessor, the unit comes with 64K bytes of random-access memory (RAM) and 24K bytes of read-only memory (ROM). A microprocessor located in the unit's keyboard reportedly provides an additional 8K bytes of RAM and 2K bytes of ROM, the vendor said.

The System 6000 includes a flexible, unbreakable Mnemodisk onto which graphics and textual information can be stored using laser and electron beam recording technologies. Also included is a standard keyboard with special function keys that can be customized for the user's application. A rear projection screen is included along with a 40-char. alphanumeric display, the vendor said.

The unit is capable of linking with local or remote computing systems via an RS-232 communications interface, a spokesman for the vendor said.

On a 12-in. disk, users reportedly can store as much information as can be contained on more than 6,000 pages of letter-size documents. Both digital and optical information can be stored on the same disk. Information can be indexed both optically and digitally. Optical information is displayed on the unit's rear projection screen and digital information is displayed on a 40-char. display, the vendor said.

Each workstation costs $2,950, the vendor said from Suite 205, 3131 Princeton Pike, Building 5, Lawrence, N.J. 08648.

'Aid-900' Fits Univac 90 Series

SANTA MONICA, Calif. — American International Devices, Inc. has announced a memory enhancement for Sperry Univac 90/30 and 90/40 series CPUs.

The Aid-900 expands memory on those systems to 2M bytes. The maximum memory available from Univac is 1M bytes on the 90/40.

The memory enhancement costs $1,295/mo/1M bytes, the vendor said from 1738 Colorado Ave., Santa Monica, Calif. 90404.

Xylogics' Model 850 Gets Two Subsystems

BURLINGTON, Mass. — Xylogics Corp. has enhanced its Model 850 emulating peripheral processor for Data General Corp. computers to include Kismet and Vulcan-equivalent subsystems.

The 850 with AOS and Rdos operating system transparency supports up to four drives for a total capacity of 1.1G bytes. Kismet-, Vulcan- and Zebra-drive emulations can be used in mixed drive capacities, the company reported.

The 850 (6160) is coupled with the Control Data Corp. 9762 Storage Module Device or equivalent disk drive for the 73M-byte Kismet drive, the spokesman said.

The 850 (6161) is coupled with the CDC 9730/160 Minimodule Drive or equivalent for 147M byte/drive. The Vulcan 277M-byte 6122 subsystem is replaced with the 850 and CDC 9766 disk drive or equivalent, according to the company spokesman.

The Xylogics 850 costs $3,100 from 144 Middlesex Tnpk., Burlington, Mass. 01803.

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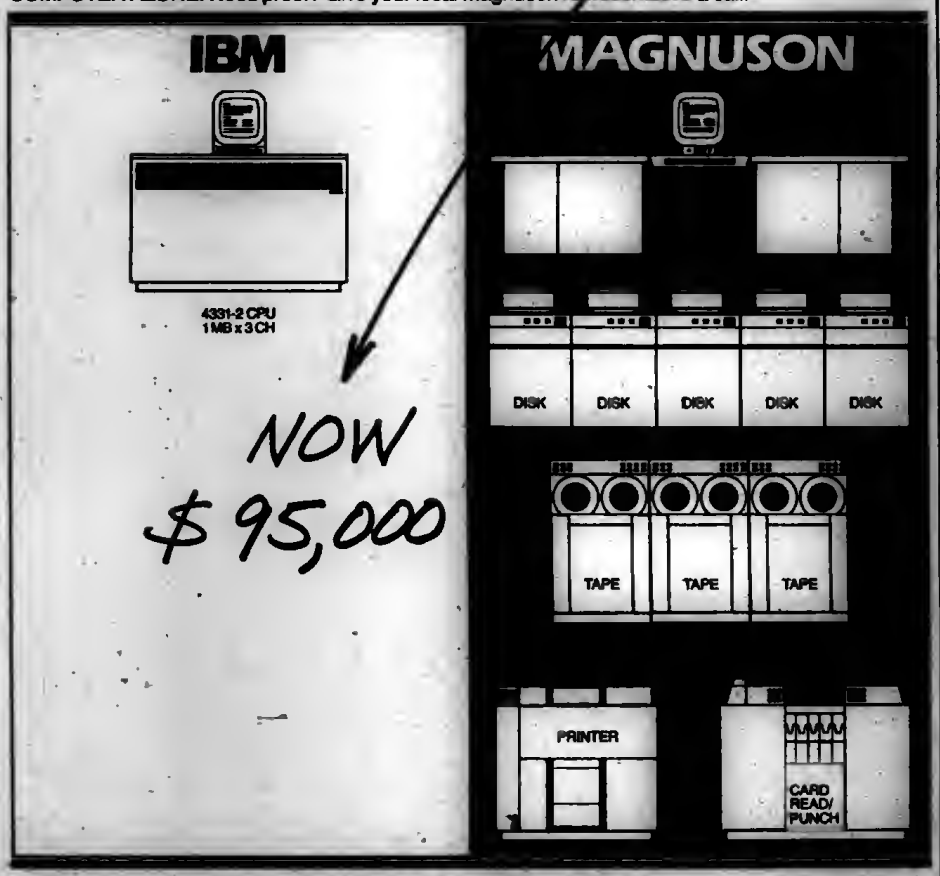

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Apparat Cuts Spool/64 Price

DENVER — Apparat, Inc. has announced a price cut on its 64K-byte hardware print spooler announced earlier this year.

Priced at $399 at its introduction, Spool/64 now costs $319 because of "lower costs now realized on the volume of production" and "to gain a more competitive edge," according to a company spokesman.

Spool/64 is said to buffer up to 64,000 characters, saving as much as 25 minutes of computer and operator time each time a long listing is printed, the company spokesman maintained. Available with a standard parallel or optional serial RS-232 interface, the unit can be obtained from 4401 S. Tamarac Pkwy., Denver, Colo. 80237.

Wantanabe Cuts Plotter Prices 10%

COSTA MESA, Calif. — Wantanabe Instruments Corp. has announced an average 10% price reduction on its line of digital plotters.

Examples of the price cuts include the firm's WX 4633, which now costs $4,690, and the WX 4636, a 10-pen plotter now priced at $5,190, according to a company spokesman. Other products covered include: intelligent, flat-bed plotters and a four-pen drum plotter. The vendor is located at 3186 Airway, Building D, Costa Mesa, Calif. 92626.

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It's HP's new Series 200, Model 16.

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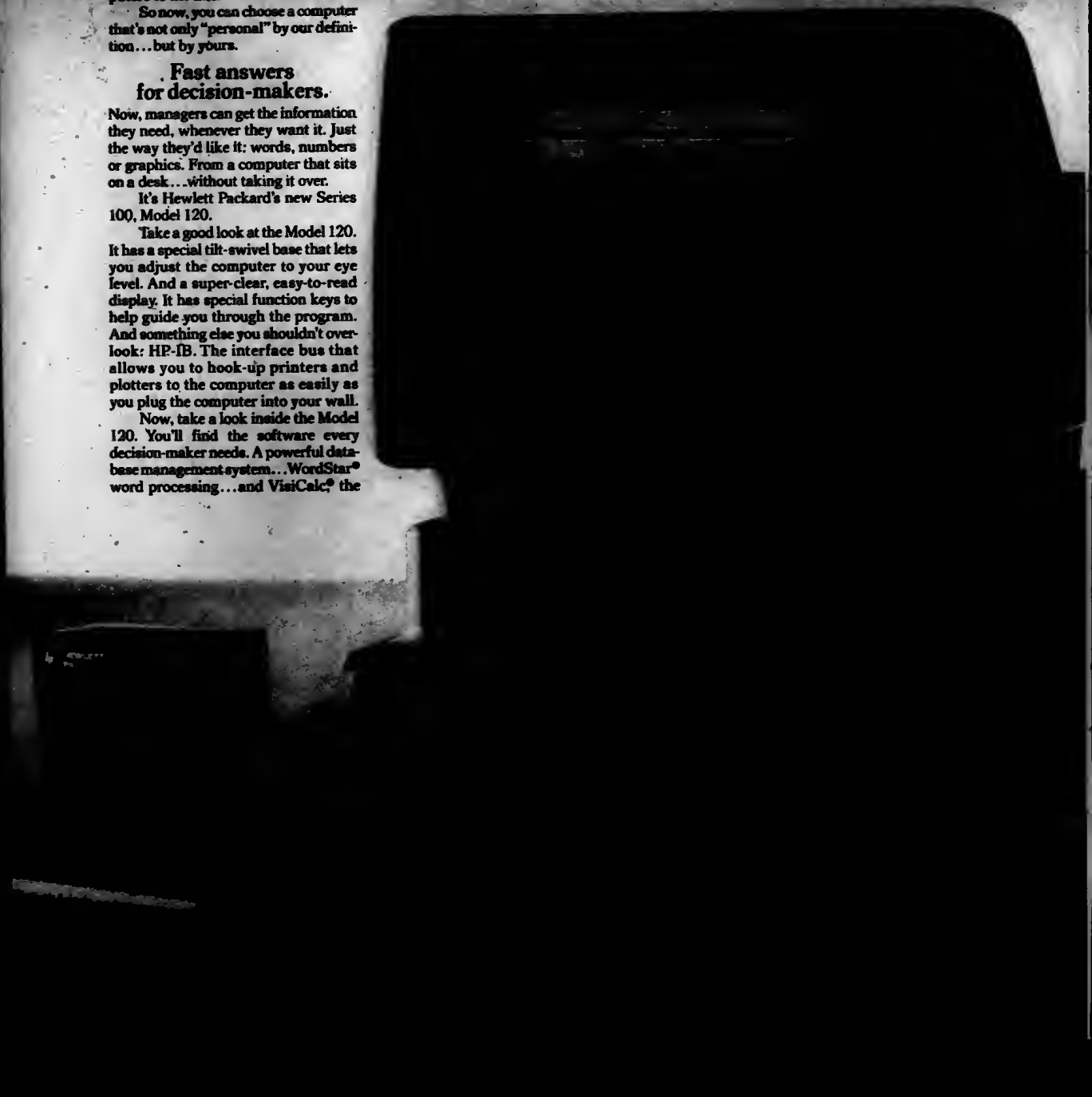

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If you spend as much time out of your office as in it, you'd probably like a way to take your office with you. And now you can—with HP's Series 70, Model 75. It's a powerful, battery-driven computer that fits in your briefcase.

With its typewriter-like keyboard, 16K RAM (expandable to 24K) and 48K ROM, the HP-75 acts like a full-size desktop computer. But it's just a little larger than an airline ticket folder. And it weighs only 26 ounces.

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Back down on the ground, you can use the HP-75's HP-IL interface to hook-up a video monitor, TV screen, printer or plotter.

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Rolm Announces Ada Work Center, Compiler

(Continued from Page 87)

ware tools, provides the full capabilities for Ada application program design, development, checkout and documentation, according to the vendor.

Application program development reportedly is simplified with an Ada screen editor, interactive debugger, text formatter for documentation creation and tools to prepare code in easy-to-read Ada formats.

The system was built around a 32-bit Rolm MSE/800 processor, designed to support demand paging, 4G-byte virtual address space, 36.4M byte/sec main memory bandwidth and a performance level of over 1.2M Whetstone instruction/sec making it well-suited to support large numbers of development stations, the vendor reported.

Supporting the MSE/800 in the basic Rolm Ada work center configuration are 2M bytes of main memory, eight asynchronous terminal lines for connection of Ada development terminals and a set of commercial peripherals including a 277M-byte disk drive, a line printer, an 800 to 1,600 bit/in. magnetic tape drive, a floppy disk drive and a system console. Target processors for the work center are the MSE/800 and 16-bit Rolm MSE/14 and 1666/B military computers.

The Rolm Ada work center, including the basic hardware configuration, Ada compiler and ADE, can be licensed for $462,000. The target development tools for the 1666/B and MSE/14 are available for an initial software license fee of $25,000 each. Shipments of the work center are slated for January 1983. Further details are available from Rolm at 4900 Old Ironsides Drive, Santa Clara, Calif. 95050.

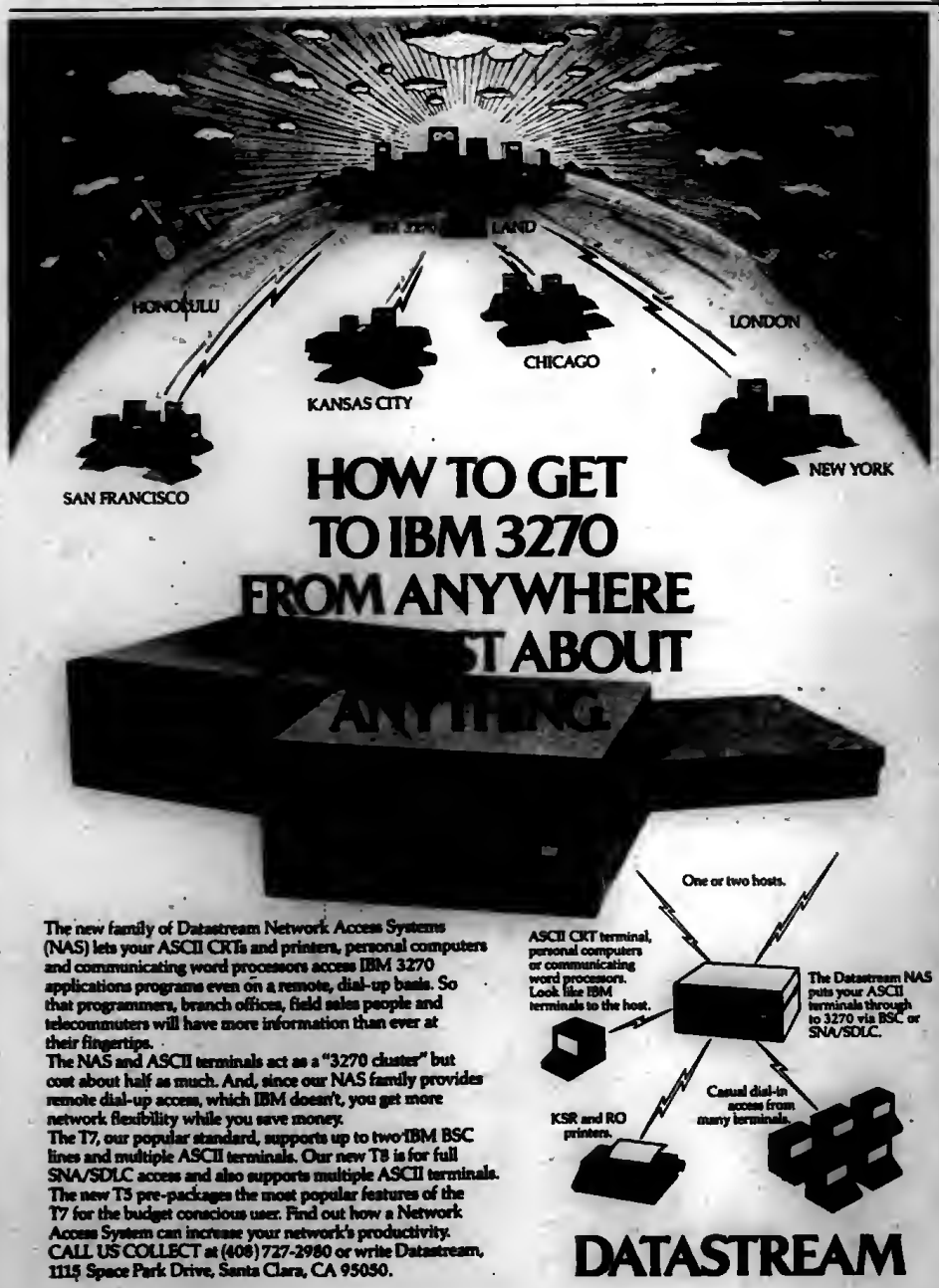
GE to Market Televideo 970, IBM 3101, Execuport 400

SCHENECTADY, N.Y. — General Electric Co. (GE) has reached agreements with a number of printer and terminal manufacturers to lease or sell their products.

GE will lease the Execuport 400 series and 4120 portable printers of Computer Tranceiver Systems, Inc. The 400 series portable printers can print over 80 char./sec, over the range of 110 to 1,200 bit/sec received data rates, according to a GE spokesman. The first products lease for between $60/mo and $90/mo, and the 4120 costs $165/mo.

Also being offered by GE are the IBM 3101 display terminal and IBM 3232 electroerosion keyboard printer, both on a lease basis. The 3101 terminal is a medium-priced model that has an array of function and editing capabilities. The 3232 printer is a desktop workstation for interactive computing environments. The former costs $90/mo to $115/mo., the latter is $155/mo.

Televideo System, Inc.'s 970 series of CRT terminals is also being offered for sale or lease by GE. These products reportedly offer 10 preprogrammed function codes and four foreign languages on the 910 Plus, programmable function keys, 15 special graphics characters, protected fields and an integral modem option. These lease for between $120/mo and $165/mo, GE said. All rental prices are based on a one-year lease. Further details on the above can be obtained from GE's Instrumentation and Computer Service Department, Room 210, Building 4, 1 River Road, Schenectady, N.Y. 12345.



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CALL US COLLECT at (408) 727-2980 or write Datastream, 1115 Space Park Drive, Santa Clara, CA 95050.

Sealectro Offers Badge Reader

MAMARONECK, N.Y. — Sealectro Corp. has announced a self-strobing, self-cleaning optical badge reader that reportedly measures less than three inches square.

The MCR-700 badge reader employs a solid-state optical system designed to read punched coding on a 2½-in. card. Up to seven channels can be read repetitively without error, a spokesman said.

The strobe genersting mechanism enables the unit to read badges that are bent or worn, regardless of insertion or removal speed, the spokesman noted. The badge can be punched for BCD, Ascii or other codes.

The MCR-700 costs $50 for a single unit from Sealectro at 227 Hoyt St., Mamaroneck, N.Y. 10543.

HP Reduces Prices Of 2680A Printer

PALO ALTO, Calif. — Monthly maintenance prices for the Hewlett-Packard Co. HP 2680A laser printer have been reduced, the third such reduction since the product's introduction in 1980.

Based on a usage of 400,800 page/mo, the charge is now $770, down from $1,035.

Hewlett-Packard is based at 300 Hanover St., Palo Alto, Calif. 94304.

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Intellimac 32-Bit Mini Offers Unix, Telesoft Ada

ROCKVILLE, Md. — Intellimac, Inc. has announced the IN/7000K, a general-purpose, 32-bit minicomputer designed around the Motorola Corp. 68000 microprocessor.

Available for use on the Intel Corp. Multibus architecture, the multiuser computer system is available with both Bell Laboratories' Unix operating system and an Ada compiler developed by Telesoft, Inc., the vendor said.

The IN/7000K comes with 768K bytes of main memory, a 68000 central processor, a nine-slot Multibus card cage, a four-port storage module device type of Winchester controller offering 1.2M byte/sec transfer rate and an eight-port intelligent serial I/O board, the vendor said.

In addition to standard features, the IN/7000K is available in seven different configurations. The Model KL offers 8M bytes of fixed disk storage plus an 8M-byte removable disk cartridge. Model KL3 offers 24M bytes of fixed storage and 24M bytes of removable disk storage. The KLF and KLF3 add a 1.6M-byte floppy disk drive to either a KL or KL3 configuration. Model KF combines an 8-in., 80M-byte Winchester disk drive with an 8-in., 1.6M-byte floppy disk drive. Model KLW and KLW3 add an 80M-byte, 8-in. Winchester disk drive to either KL or KL3 models. The latter models contain 96M and 128M bytes of disk storage, respectively, the vendor said.

Operating under the Unix Version 7 operating system, the 7000K offers about half the performance of a Digital Equipment Corp. VAX-11/780 processor. In a Telesoft Ada environment, the 7000K was slightly faster than the VAX-11/780, the vendor said.

The systems cost from $25,000, the vendor said from Sixth Floor, 6001 Montrose Road, Rockville, Md. 20852.

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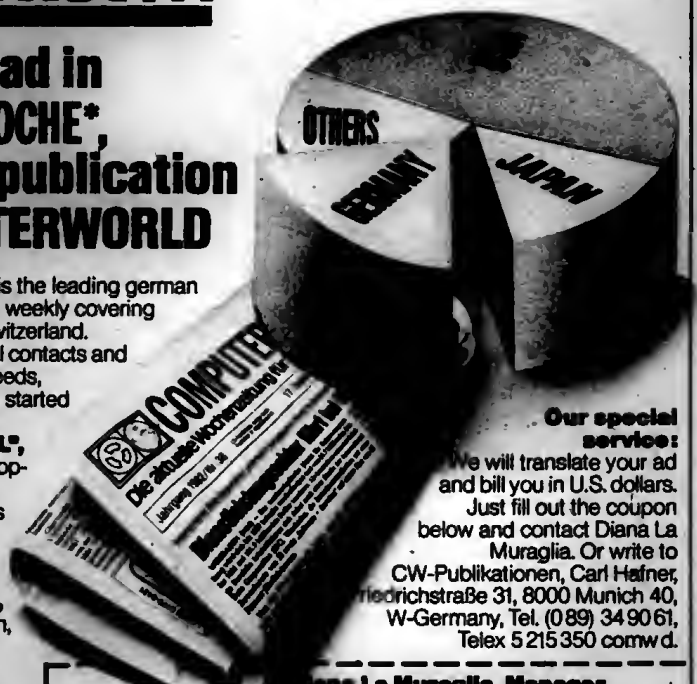

*COMPUTERWOCHE is the leading german speaking DP publication, weekly covering Germany, Austria and Switzerland. Based on it's international contacts and worldwide information needs, COMPUTERWOCHE has started a new editorial service: "CW INTERNATIONAL", covering the latest developments in the DP market, highlighting one country's industry every other month.

Our next CW INTERNATIONAL, issued on December 10th, reports on activities of the American Industry, which has developed to Germany's major supplier in DP products on this expanding market (No. 3 behind the US and Japan).

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DEC Unveils Surge Protectors

MAYNARD, Mass. — Digital Equipment Corp. has announced a family of lightning surge suppressors designed to protect the firm's computer equipment from high-energy electrical transients, such as those produced by electrical atorms.

Called the H7007 series, the line consists of 15 products divided into three groups — A, B and C series.

The H7007-A series protects computer systems through power lines. Each unit protects equipment connected to a single power circuit from currents up to 20,000 amperes. Various models protect for different voltages and phase types, DEC said.

The H7007-B series was designed to protect single EIA and 20mA data lines connected between buildings. Both terminals and computer systems can be protected. For full protection, the B series lightning suppressors must be attached to both ends of a data line, DEC said.

The C series was designed to protect multidata line configurations.

The A series power line suppressors cost from $134, and The B series devices cost from $97. The C series multidata line suppressor and enclosures cost from $34 and $258, respectively, DEC said from Maynard, Mass. 01754.

Based on DEC LSI-11

Digital Graphics Facility Out

RALEIGH, N.C. — Geobased Systems, Inc. has announced a complete digital data base construction facility for digitizing maps, drawings, photographs, strip charts and other graphics material.

Called GWS Model 3, the unit is based on a Digital Equipment Corp. LSI-11 computer, with a graphics/alphanumeric terminal, a digitizing table and disk storage.

The Storage and Retrieval of Informative Graphics (Strings) software is an interactive graphics package that features both stream and point feature collection, a spokesman said.

A universal data base translation program that reformats the Strings data base according to user requirements is included.

Hardware options include color graphics, larger digitizers and disks, flat bed and drum plotters, added printers and multiuser environment. Software options include user-defined display, symbology and plotting programs, communications and word processing.

The complete system costs $25,000, the spokesman said from 725 W. Morgan St., Raleigh, N.C. 27603.

Touch 'N Draw Gets Winnie

LOS GATOS, Calif. — Arrigoni Computer Graphics, Inc. has announced a Winchester disk drive for its Touch 'N Draw computer-aided design and drafting system.

The disk drive, which comes with a controller, is available in 10M-, 20M- or 40M-byte versions. An 8-in. floppy disk drive is included for archive storage and system loading, the vendor said.

A 10M-byte disk drive costs $15,500, a 20M-byte version costs $18,500 and the 40M-byte drive costs $21,500, the vendor said from 170 Knowles Drive, Los Gatos, Calif. 95030.

Switching Units Aid Systems With RS-232, Ascii Devices

PALO ALTO, Calif. — Giltronix, Inc. has announced a line of automatic switching units. The devices are used to select peripheral devices automatically or manually through a processor or control unit.

The switching units were designed for use with systems compatible with RS-232 communications lines and Ascii/asychronous data I/O devices. They are available in three basic models of switching units: the ASU3, ASU5 and ASU7. The units offer three, five and seven ports respectively, a spokesman for the vendor said.

The units can be used for unmanned control of peripherals and give the user the option of placing peripherals in remote locations. A networking capability is available through a line-driving function that permits remote site port selection as well as remote operation, the vendor said.

The ASU3 costs about $499, the ASU5 about $549 and the ASU7 about $599.

Prices may vary slightly according to configuration, the vendor said from Giltronix at 970 San Antonio Ave., Palo Alto, Calif. 94303.

System Clamps Transients

LEBANON, Ind. — Hi-Tech Systems, Inc. has announced a transient suppression system designed for the protection of large computer and peripheral equipment from voltage spikes.

The Model HT-2083-Y is a noncurrent carrying device, hard-wired with conduit connectors and fused on all three phases, a spokesman said.

The unit was designed to suppress transients from light panels, motor panels, fluorescent and other ballast-type lamps.

The system positively clamps transients on all phases at 20% above the sine wave peak, the spokesman said. Response time is 5 nsec.

The units costs $990 from 3985 N. State Road 39, Lebanon, Ind. 46052.

Two Units Hold Fanfold Printouts

ROXBURY, Conn. — Transmatic, Inc. has announced two holders for fanfold computer printouts.

Called the Models 9.5 and 14.8, the units can hold more than 800 folds or can be fed from a carton on the floor.

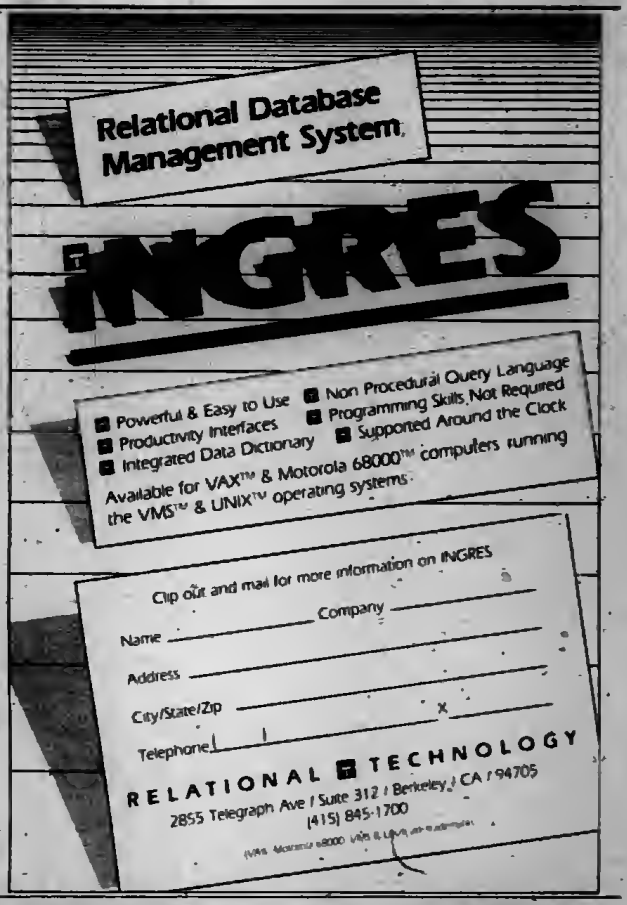
Model 9.5 accepts paper up to 9½ in. wide and costs $323. Model 14.8 accepts full-size paper and costs $368, the vendor said through P.O. Box 186, Roxbury, Conn. 06783.

Monitor Tracks Power Outages

COPIAGUE, N.Y. — TII Electronics, Inc. has announced a microprocessor-controlled power line monitor that reportedly identifies and prints confirmation of power outages, dips, surges, spikes and noise.

The TII GPS-P includes a continuous liquid-crystal display and provides a printed readout of the type of power problem that occurs, the date and time, a spokesman said. A coded locking feature provides security and an alarm warns of fault conditions.

The unit — available in 120Vac, 50/60Hz; 208Vac, 50/60Hz; 220Vac, 50/60Hz; and 120Vac, 400/415Hz — costs $975 from TII at 1375 Akron St., Copiague, N.Y. 11726.



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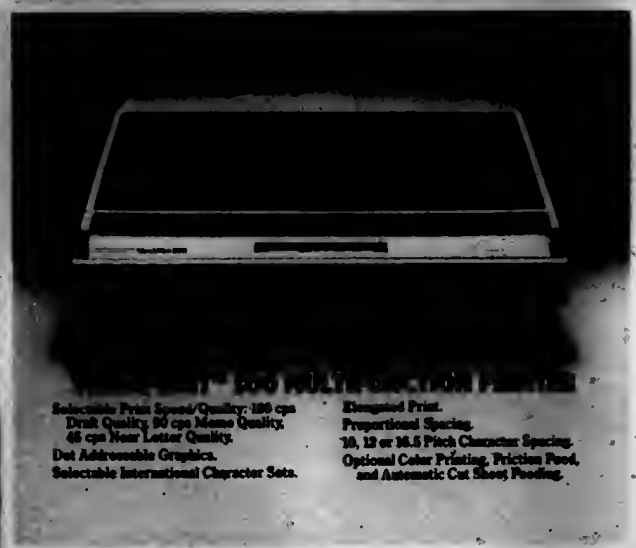

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T-Bar Announces Line Of Matrix Switch Systems

NEW YORK — A line of matrix computer switch systems was introduced by T-Bar, Inc. here.

Called the T-Bar 3690 CSM Computer Switch Matrix, the product was designed for users seeking computer system expansion and is capable of continued expansion of up to 384 cross-points offering 379 different matrix sizes in single input channel or output port increments, T-Bar said.

According to the company, other features include LED channel indicators, direct diagnostic access for troubleshooting, upgrading capabilities with existing 3900 switches, local CRT display and remote control display using a RS-232 interface, automatic data transfer protection and future peripheral compatibility.

A typical configuration is priced at $69,400 and is available immediately. T-Bar can be reached through 141 Danbury Road, P.O. Box T, Wilton, Conn. 06897.

Mag Tape Cleaning Device Simulates Error Detection

BURLINGTON, Mass. — A magnetic tape evaluation and cleaning device that reportedly tests for up to six types of errors and simulates computer system error-detection criteria has been announced by Computer-Link Corp.

The Series 2050 Tape Evaluator/Cleaner features computer-compatible cleaning and testing to simulate error-detection criteria of computer systems, a spokesman said. Removing cleanable errors and testing a 2,400-ft tape in less than four minutes, it detects single-, dual- and multiple-track dropouts and edge, gross and permanent write errors.

The unit reportedly provides independent density-level threshold settings and adjusts up to 50% for clipping level. The Series 2050 is priced from $14,990, depending on options, the spokesman said from 40 Ray Ave., Burlington, Mass. 01803.

1982 FALL AUDIT SEMINAR SCHEDULE.

Albuquerque, NM	November 18
Atlanta, GA	December 9
Baltimore, MD	January 18
Birmingham, AL	January 20
Boston, MA	November 17
Boston, MA	January 18
Buffalo, NY	December 2
Charlotte, NC	January 12
Chicago, IL	December 1
Columbia, SC	December 14
Dallas, TX	January 20
Grand Rapids, MI	November 18
Greensboro, NC	January 27
Greenville, SC	November 16
Harrisburg, PA	December 2
Lexington, KY	January 27
Los Angeles, CA	December 8
Los Angeles, CA	January 18
Louisville, KY	January 20
Meadowlands, NJ	January 11
Merrimack, NH	January 13
Miami, FL	January 13
Minneapolis, MN	January 18
Mobile, AL	December 2
New York, NY	January 18
Phoenix, AZ	January 26
Portland, ME	January 19
Salt Lake City, UT	December 15
San Francisco, CA	January 18
San Jose, CA	November 2
Seattle, WA	November 1
Seattle, WA	January 25
South Bend, IN	January 27
Stamford, CT	December 9
Tampa, FL	November 2
Vancouver, BC	January 20
White Plains, NY	December 2

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Micro-Based Business Systems Unveiled

• Systems Group

ORANGE, Calif. — Systems Group has announced the System 2900, an 8-bit microcomputer-based system which reportedly supports from four to 20 users.

When used with the company's Business Express software, the system is said to support 10 users simultaneously. Hardware is expandable for up to 20 user consoles and printers and 80M bytes of fixed hard disk storage with a 15M-byte tape drive or optional floppy disk drive backup.

The software architecture integrates a sophisticated data base manager, a multiuser executive and an application processor into a stand-alone application.

Hardware is based on the S-100 bus and supports a variety of disk drives.

Two standard operating systems are available for multiuser, multitasking systems. Oasis software by Phase One Sys-

(Continued on Page 107)

• Texas Instruments

DALLAS — Texas Instruments, Inc. has extended its Business System Series line of minicomputers upward with the introduction of the Business System 800 Series.

The six packaged configurations in the series replace the high end of the DS990 processor family. They offer speeds up to twice as fast as the mid-range TI Business System 600 Series and up to 476M bytes of formatted storage capacity as a standard feature, a spokesman said.

The systems incorporate TI's recently unveiled 990/12 CPU, which reportedly offers 16-bit, memory-to-memory architecture with 512K bytes to 2M bytes of error-correcting memory. The improved CPU features overlapped operations, faster integrated circuitry, cache memory, larger instruction set and an improved memory cycle time over the company's existing 990/10A CPU. The number of memory

(Continued on Page 100)

• Hewlett-Packard

SUNNYVALE, Calif. — Hewlett-Packard Co. today expanded its personal computer family with two additional models that are each equipped with a 3½-in. floppy diskette unit and are said to occupy about as much desk space as an open three-ring binder.

One of the two systems, the Series 100 Model 120, is intended primarily for office use in both large and small companies and reportedly is optimized for business-oriented applications like word processing, decision support, programming and accounting.

The other system, the Series 200 Model 16, is targeted mainly at engineering and scientific applications and incorporates an 8MHz Motorola Semiconductor Products, Inc. MC68000 microprocessor, said to allow the computer to execute 500,000 in-

(Continued on Page 102)

Portable Processor Features IBM Compatibility, 9-In. CRT

Compaq Computer Corp.'s Compaq

HOUSTON — Compaq Computer Corp. has announced a portable processor said to be compatible with IBM's Personal Computer.

The unit can run all the major business and professional software packages used with the IBM micro, including Visicorp's Visicalc and Information Unlimited Software, Inc.'s Easywriter word processing package.

Scheduled for first customer shipments in 1983 through as yet undisclosed retail outlets, the Compaq weighs 28 pounds and includes a 16-bit Intel Corp. 8088 microprocessor. The unit comes with a 9-in. diagonal screen and is equipped with 128K bytes of random-access memory.

The Compaq is expandable to 265K bytes of main memory on the main system board, and a 5¼-in. floppy disk drive with 320K bytes of storage is included. A second, optional 320K bytes can be added, the vendor said.

The basic system also includes a port for a color video monitor, a port for composite video, a port for connection to a standard television set, a parallel printer-interface and a socket for an Intel 8087 co-processor. Options include an asychronous communications interface, and a serial printer adapter, the vendor said.

Also included with the system are three Personal Computer-compatible hardware expansion slots, which make it possible to enhance the Compaq with extra memory and peripherals, the vendor said.

The Compaq costs $2,995, the vendor said from 12337 Jones Road, Houston, Texas, 77070.

North Star Contract Gives Customers Leading Option

SAN LEANDRO, Calif. — North Star Computers, Inc. has announced an agreement with U.S. Leasing, giving customers the option of leasing systems through participating dealers.

The cooperative venture with U.S. Leasing makes three- to five-year leases available on the company's line of Advantage and Horizon microcomputers.

North Star is located at 14440 Catalina St., San Leandro, Calif. 94577.

CD Portable Targets IBM Micro

BURLINGTON, Mass. — Computer Devices, Inc. (CD) introduced a poartable personal computer here last week that the company said is fully compatible with the IBM Personal Computer.

Called "DOT," the basic system features an Intel Corp. 8088 16-bit microprocessor with the MS/DOS operating system, 32K bytes of memory, a monitor with bit map graphics capabilities, keyboard, disk drive and two-memory option slots, according to CD.

Optional systems offer two RS-232C communications ports, additional 32K bytes of memory, a MS/DOS Basic software kit, a built-in 300 bit/sec modem or a 300/1200 bit/sec Bell Laboratories' 212A modem with RJ-11 direct connect and 52 hours of remote computer time as well as a built-in printer and controller, according to CD.

In addition, a Zilog, Inc. Z80 CPU can be implemented to allow the system to run Digital Research, Inc.'a CP/M 2.2 without an emulation mode.

Software, including Microsoft, Inc.'s MS/DOS and the Datamension Corp. Manager series, is available for use on the system as well, CD said.

Pricing for the basic DOT starts at $2995 and increases to $3995 depending on options. The systems are immediately available, according to CD.

Computer Devices is located at 25 North Ave., Burlington, Mass. 01803.

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(Continued from Page 99)

chips in the CPU is reduced by the user of the new 64K-byte dynamic random-access memory.

Full hardware and operating system compatibility with all DS990 systems is claimed. Those systems include the Business System 200 series of single-user computers, the 300 series low-end multiuser system and the 600 series mid-range system.

Storage flexibility allows users to employ Winchester hard disks, cartridge disks, removable disk packs and magnetic tape. The systems support a variety of TI printers, including the LP 300 and LP 600 matrix-line printers and the LQ45 daisywheel letter-quality printer.

The spokesman said the systems support the DX10 and Dnos operating systems, which are compatible across the TI Business Systems Series. The DX10 is a multitasking system using a System Command Interpreter, a collection of more than 190 procedures that provide basic system functions. Dnos is a DX10-compatible multitasking operating system that includes enhanced device support, job accounting and an output spooler for system-level management of output resources.

Both operating systems reportedly include utilities and program development tools and file management packages. Available utilities include a data dictionary, data base management system, a query language and word processing. Both support Cobol, Basic, Fortran, RPG II and Pascal programming languages.

Interactive and batch communications software is supported under both operating systems. The Series 800 reportedly can support 3780/2780 protocol, 3270 Interactive Communications Software and Remote Terminals Subsystem software.

Operating under the Distributed Network Communications System, Dnos adds IBM's Systems Network Architecture (SNA) support and X.25 compatibility. This allows the 800 series system to function as a stand-alone computer for local applications while concurrently operating as part of an SNA network or X.25 packet-switched network.

Each of the six packaged systems includes the Model 911 video display terminals with 1920-char. screen and full Ascii character set. Mass storage capacity up to 1G byte can be achieved by daisy-chaining disk subsystems. Up to four subsystems can be added to a single control unit, and each system can have multiple control units, the company claimed.

The packaged systems include:

- System 861 — This uses the CD1400/96 disk subsystems providing a nominal 80M bytes of formatted data storage in a 13M-byte removable cartridge plus a 67M-byte fixed disk. The price is $57,500.
- System 872 — A WD800 Winchester Disk subsystem provides 43M bytes of data storage with back-up and file transfer capabilities provided by an integral start/stop 14M-byte magnetic cartridge tape drive. The price is $51,000.
- System 880 — Up to 124M bytes of formatted storage is provided on dual DS80 disk drives using five-platter removable disk packs. The price is $66,500.
- System 882 — A single DS80 disk subsystem is backed up by the MT1600 magnetic tape drive. The MT1600 reportedly features archive storage and data transfer using 1600 bit/in. magnetic tape. Standard storage is 62M bytes with the system priced at $64,500.
- System 884 — A maximum formatted storage capacity of 476M bytes is provided by two DS300 disk drives using 12-platter removable disk packs. The price is $86,000.
- System 886 — The standard storage is 238M bytes on a single DS300 disk drive. The 886 also uses the MT1600 magnetic tape drive and costs $76,000.

The company can be contacted through P.O. Box 202146, Att: H-636, Dallas, Texas 75220.

RAM Board Fits Z80, 8080 Micros

SAN LEANDRO, Calif. — Memory Merchant has announced a 16K-byte static random-access memory (RAM) board said to be compatible with Zilog, Inc. Z80 and Intel Corp. 8080 and 8085 microprocessors.

The board uses 2114 RAM chips and features four independently addressable 4K-byte memory blocks, one 4K-byte segment equipped with 1K-byte windows and a bank-select option, allowing I/O port selection and bit selection within the port.

The board is priced at $169 from Memory Merchant at 14666 Doolittle Drive, San Leandro, Calif. 94577.

Single-Board Uses Peripherals, Software Designed for IBM Micro

CEDARHURST, N.Y. — A single-board computer system said to be fully compatible with applications software and hardware peripherals and designed for the IBM Personal Computer has been announced by Micromint, Inc.

The MPX-16 is designed around a 5-MHz Intel Corp. 8088 CPU and reportedly offers 20-bit addressing capability for up to 1M byte of system memory. Other features include 256K bytes of random-access memory, two serial and three parallel I/O ports and five expansion slots.

The MPX-16 runs under Digital Research, Inc.'s CP/M-86 operating system. As a stand-alone system the unit communicates with the user through a serially interfaced display terminal. Micromint's Basic I/O System module of CP/M-86 is contained in a set of erasable programmable read-only memories on the board.

The unit costs $1,895, with OEM discounts available from 561 Willow Ave., Cedarhurst, N.Y. 11516.

Smaller Version of Cadet Offered; Based on Zilog Z80

CHATSWORTH, Calif. — Integrated Business Computers, Inc. has announced a low-cost, smaller version of its Cadet computer system.

The Middi-Cadet is a Zilog, Inc. Z80-based system said to be faster and cheaper than its competitor, the Altos Computer Systems, Inc. ACS-8000-14. The Middi-Cadet includes a 256K-byte random-access memory, 20M-byte, 5¼-in. hard disk; 1M-byte, 5¼-in. floppy disk; 10 serial ports; and one Centronics Data Computer Corp. port.

The system costs $7,500 from 21592 Marilla St., Chatsworth, Calif. 91311.

Controller Targets DEC

HARTFORD, Wis. — General Robotics Corp. has announced a streaming tape controller for users of Digital Equipment Corp. LSI-11 Q-bus systems.

Called the STV11, the unit provides an interface for Archives, Inc. and Cipher Data Products, Inc. tape drives for users of DEC LSI-11 systems. A single 50-conductor ribbon cable connects up to two Archives or Cipher tape drives with two or four recording tracks. From 10M to 45M bytes of data can be stored on a single 450-ft tape cartridge depending on the tape drive model used, the vendor said.

The STV11 costs $1,500, the vendor said from 57 N. Main St., Hartford, Wis. 53027.

CP/M-Based System Out For Home, Business Use

WOODBURY, N.Y. — A Digital Research, Inc. CP/M-based personal computer system designed for business and home applications is available from Ontel Corp.

Amigo uses a Zilog, Inc. Z80A microprocessor with 64K bytes of random-access memory (RAM) functioning as a central processor and I/O controller and a Mostek Corp. 6502 microprocessor to control 44K bytes of RAM for graphics.

The system features a 12-in. CRT and is available with dual 5¼-in. floppy disk drives with up to 400K bytes of storage, according to the vendor.

Prices start at $2,395 from the firm, which is located at 250 Crossways Park Drive, Woodbury, N.Y. 11797.

Spooler Card Designed For Use With IBM Micro

COSTA MESA, Calif. — A spooler card designed for use with IBM Personal Computer systems that reportedly allows users to enter a new task into the computer while results of the previous task are being printed has been announced by Wesper Microsystems, Inc.

The Wizard-Spooler will allow 16K bytes of data to be transferred to the spooler's character buffer, with the data then fed to a printer at the rate the printer can accept, a spokesman for the company said. Once transferred, the user has use of other computer facilities.

Two 64K-byte random-access memory (RAM) chips provide the 16K bytes of character buffering, and this can be doubled or quadrupled by plugging additional RAM chips into empty sockets on the card, the company said.

The Wizard-Spooler parallel printer controller is priced at $289, and a serial printer version costs $349, from Wesper Microsystems, 3188 Pullman St., Costa Mesa, Calif. 92626.

Speech Synthesizer Debuts

CEDARHURST, N.Y. — A text-to-speech synthesizer from Micromint, Inc. is aimed at the DP, telecommunications, automation, and education markets.

Featuring 64 digitally programmable levels of inflection, Microvox can also function as a typewriter for the blind or a communicator for the vocally impaired when attached to a terminal keyboard.

The unit features a 750-char. buffer, full Ascii character set, a 75 to 9,600 bit/sec transmission rate, and an RS-232C or parallel connector. Microvox costs $295 from the firm at 561 Willow Ave., Cedarhurst, N.Y. 11516.

Bubble Memory Out for Apple II

SAN DIEGO — MPC Peripherals Corp. has announced a bubble memory module for the Apple Computer, Inc. Apple II computer.

AP-Bub is said to execute DOS, READ or WRITE commands three times faster than the standard floppy disk.

AP-Bub costs $875 from the vendor at 9242 Chesapeake Drive, San Diego, Calif. 92123.

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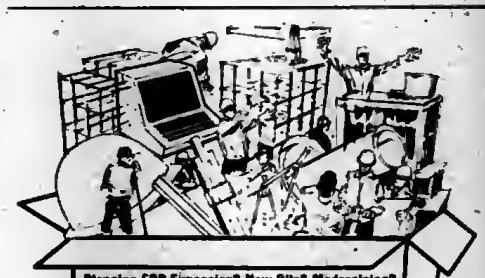

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HP Adds Two Models to Micro Family

(Continued from Page 99)

structions/sec.

Both the Models 120 and 16 fit on top of — and nest within — HP's recently introduced Series 9100 microfloppy diskette unit, which measures about 13 in. long by 11 in. wide. Manufactured by the Tokyo-based Sony Corp., the drive uses up to two 3½-in. floppy diskettes.

With a detachable keyboard, a Model 120 or 16 — incorporating a processor, 9-in. display screen and the microfloppy diskette unit — measures roughly 19 in. by 11 in., for a total "footprint" of slightly more than 200 sq in.

In computing power, the Model 120 rivals HP's existing Series 100 Model 125 personal computer but occupies less space, a company spokesman said. Like the 125, the 120 uses dual 4-MHz Zilog, Inc. Z80A microprocessors with 64K bytes of main memory, 16K bytes of display storage and 32K bytes of fixed memory for internal functions.

Both personal computers are also said to support Digital Research, Inc.'s CP/M operating system and several widely used microcomputer software products, including:

- Micropro International Corp.'s Word Star, Spell Star and Mail Merge word processing packages.
- Visicorp's Visicalc electronic spreadsheet.
- Condor Computer Corp.'s report generators and data base management system.
- Several HP-produced programming aids such as Series 100 Graphics and Series 100 Basic.

At present, the Models 120 and 125 are the only two members of HP's 8-bit Series 100 family of business-oriented personal computers.

Said to belong in basically the same product category as the IBM Personal Computer and the Apple Computer, Inc. Model III, the 120 can operate either as a stand-alone processor or as an intelligent terminal capable of communicating with larger HP or non-HP CPUs, the spokesman said.

Standard with the Model 120 are an IEEE connector, which supports up to 14 peripherals, and two RS-232C serial ports.

The 120 also accommodates the Series 9100 microfloppy diskette unit in any one of three configurations. Capable of storing 270K byte/drive and transferring 17.8K byte/sec, the unit is available either in a single or dual 3½-in. drive package and can also be configured with one 3½-in. microfloppy and a companion 4.6M-byte Winchester disk, the spokesman said.

Unlike the CP/M-based Model 120, the Series 200 Model 16 uses its own proprietary operating system and is aimed primarily at technical users, especially engineering managers. The computer runs software packages like Visicalc and a terminal emulator and accommodates three languages — Basic, Pascal and Forth.

A standard Model 16 comes with 128K bytes of main memory expandable to 768K bytes.

Prices for the Models 16 and 120 start at $3,650 and $2,775, respectively, compared to $1,775 for a dual-drive version of the microfloppy diskette unit. All three products are available now either through dealers or directly from HP at 978 E. Arques Ave., Sunnyvale, Calif. 94086.

Lee Data Adds Micro Feature

MINNEAPOLIS — Lee Data Corp. has added a personal computing feature to its line of IBM-compatible 3270-type terminals.

The personal computing feature is available as an add-on unit incorporating an Intel Corp. 8080 microprocessor, 128K bytes of main memory, a 5¼-in. floppy diskette, display and printer interfaces and four standard expansion ports, the vendor said.

The basic unit can be expanded to offer 256K bytes of on-board memory, and the unit will accommodate a second diskette unit. Lee Data's Personal Workstation is software-compatible with IBM's Personal Computer, and the device can still be used as an IBM 3278-type terminal to access applications on IBM CPUs, the vendor said.

A basic Personal Workstation enhancement costs $2,733. An additional 128K bytes of main memory costs $713, and a second disk drive costs $550. Also available from the vendor are an 80-col printer ($610) and a IBM Personal Computer-like keyboard ($416). The vendor is located at 10206 Crosstown Circle, Minneapolis, Minn. 55344.

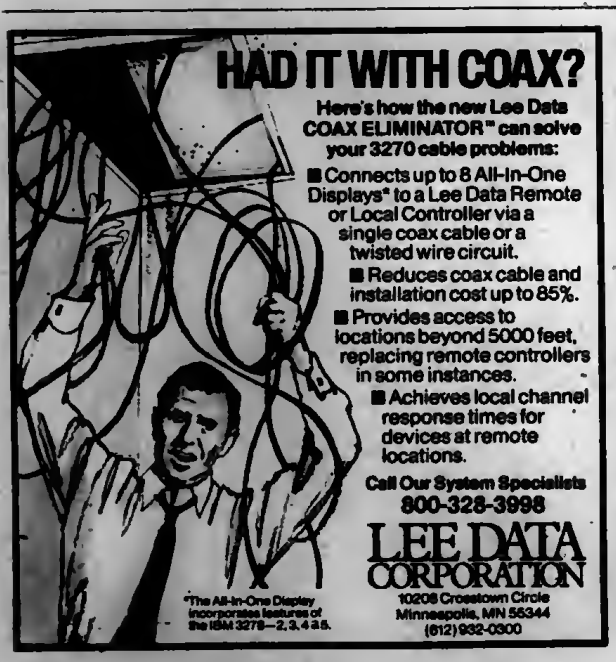
DSD 890 Works With DEC LSI-11

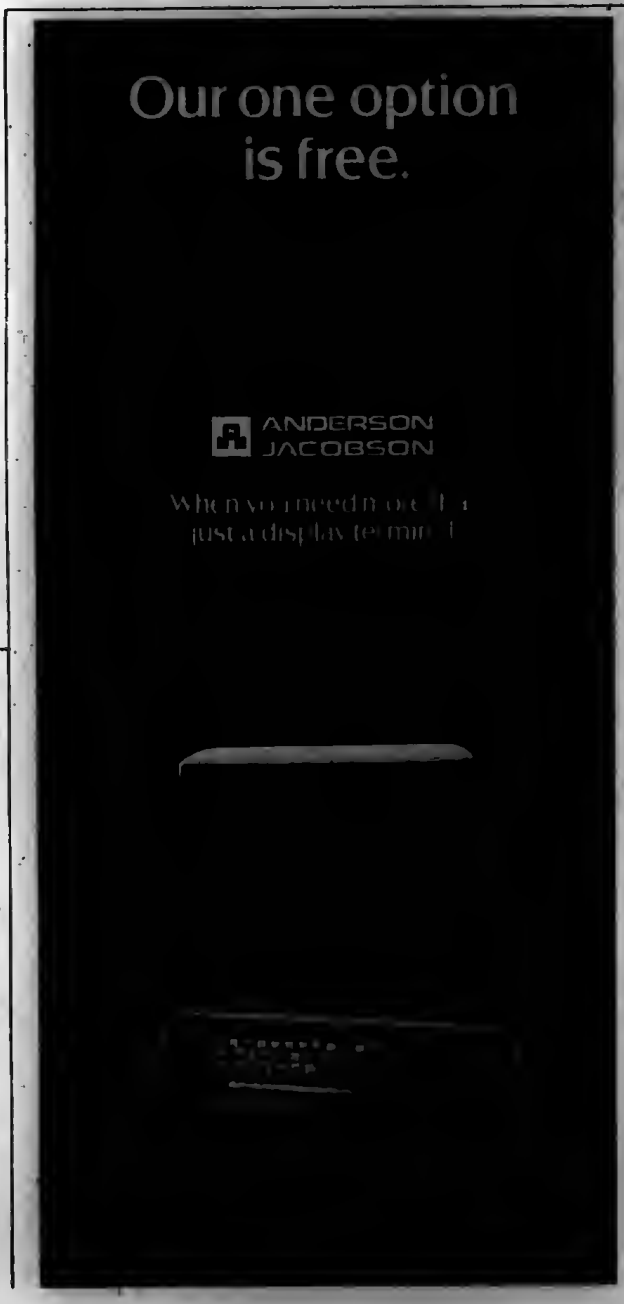
SAN JOSE, Calif. — Data Systems Design, Inc. has announced a 31.2M-byte Winchester disk subsystem said to emulate Digital Equipment Corp.'s RL02 cartridge disk drives.

Called the DSD 890, the unit comes with a ¼-in. tape drive for backup. The tape replaces DEC's TSV05, the vendor said.

The DSD 890 is fully compatible with DEC LSI-11 Q-bus systems. The disk subsystem operates under DEC's RT, RSX and RSTS operating systems as well as Bell Laboratories's Unix operating system, the vendor said.

The DSD 890 costs $9,895, the vendor said from 2241 Lundy Ave., San Jose, Calif. 95131.





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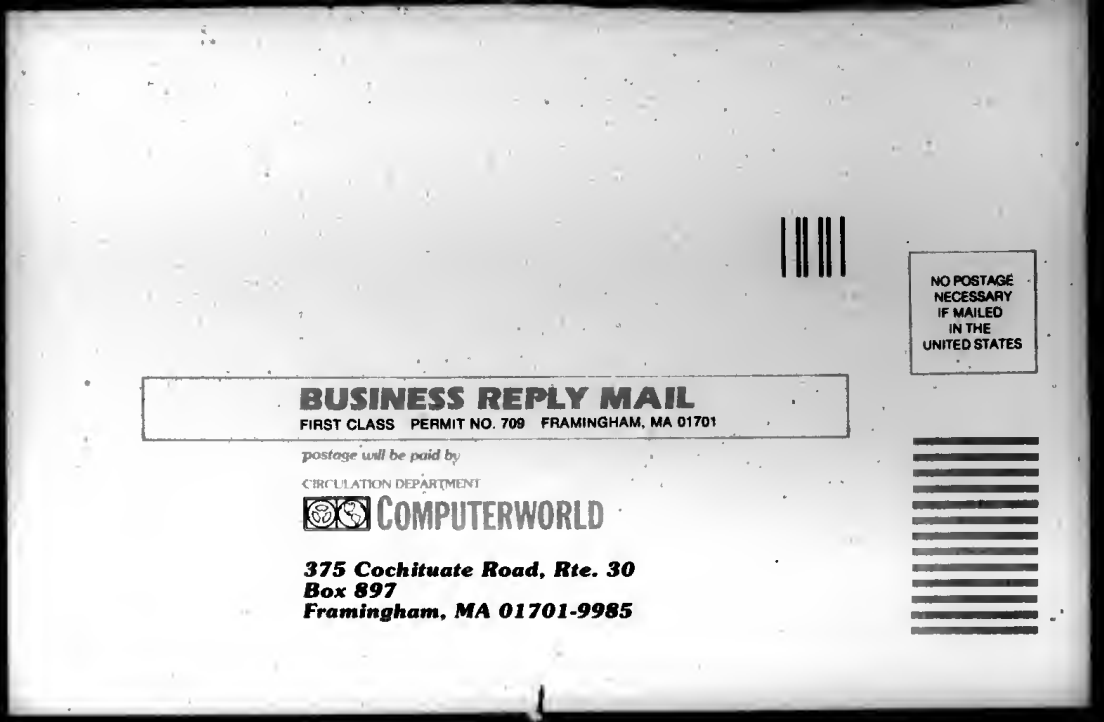

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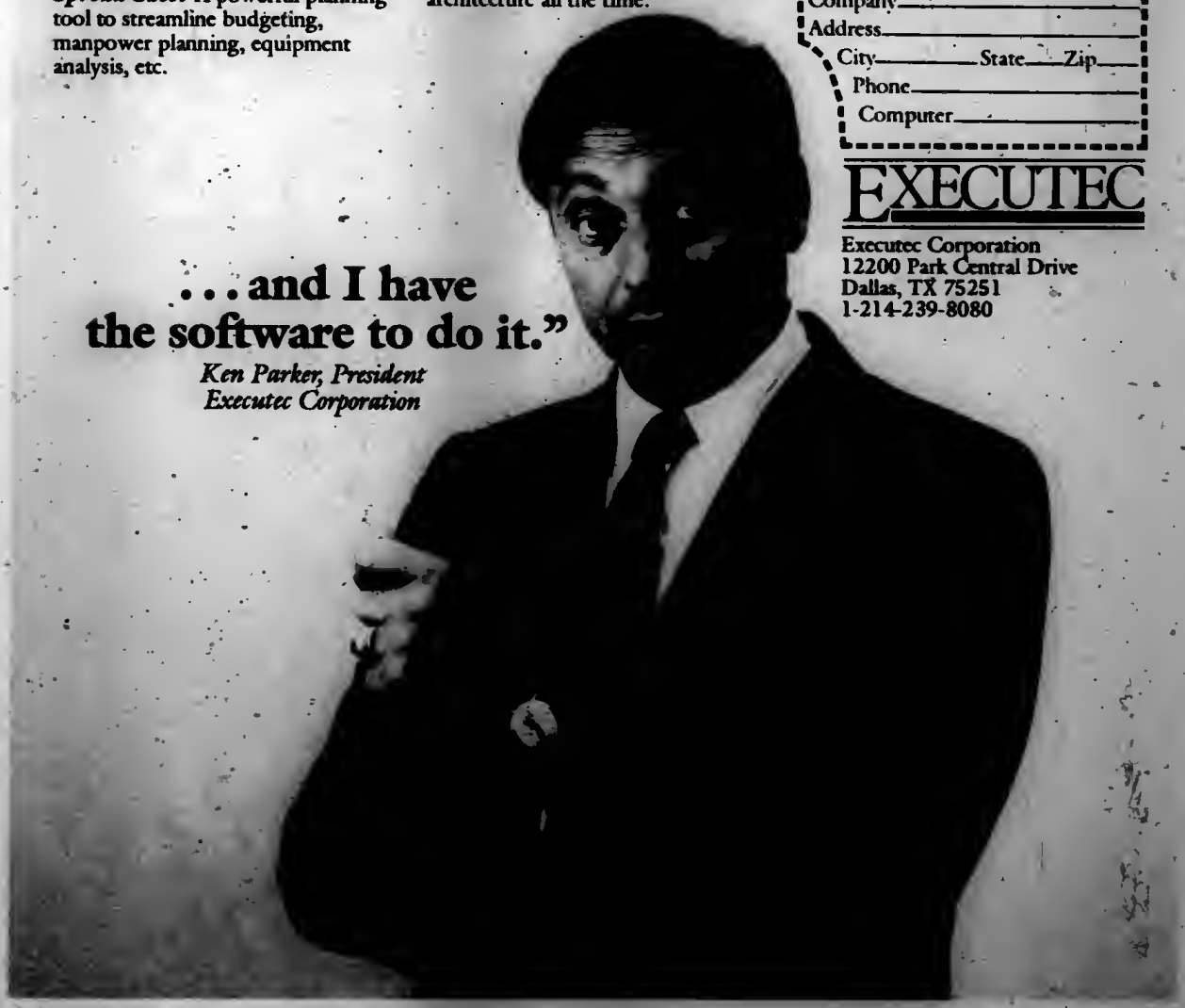

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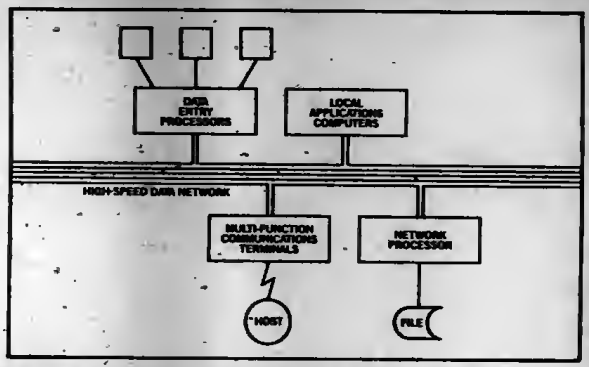

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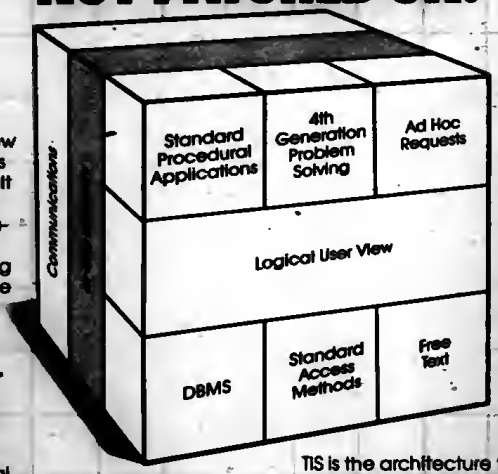

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IBM Personal Computer Gets Four Add-On Cards

IRVINE, Calif. — AST Research, Inc. has announced four add-on cards for the IBM Personal Computer.

Superdrive allows system memory to be used as an electronic disk to minimize time-consuming disk access operations. The unit costs $45. Superspool, also $45, is said to allow system memory to be used as a printer spooler.

Megaplus offers a maximum of eight functions on a single card slot, including a Personal Computer DOS-compatible clock calendar with battery backup. The unit comes with 64K bytes of parity memory, expandable to 512K. Prices start at $595.

I/O Plus offers all the features of Megaplus except that it does not have memory expansion capability. Prices for it start at $165.

AST is located at Suite 104, 2691 Richter Ave., Irvine, Calif. 92714.

Memory Cards Out for Apple

SCOTTS VALLEY, Calif. — Mountain Computer, Inc. has announced two memory expansion products designed for the Apple Computer, Inc. Apple II microcomputer.

A 32K-byte Rampius card reportedly expands memory on the Apple II to 80K bytes. The Rampius enhancement also includes a diskette drive, which acts as a language expander providing the user with Apple's Integer and Applesoft Basic languages. The expansion costs $219, the vendor said.

The firm also announced a Visicorp Visicalc expansion board designed to expand available memory for users of the spreadsheet packaged produced by Digital Research, Inc. The board provides up to 145,000 bytes of additonal memory for Visicalc applications. The expansion board costs $100, the vendor said 300 El Pueblo Road, Scotts Valley, Calif. 95066.

ADC Unveils Test System

TUSTIN, Calif. — Applied Data Communications, Inc. (ADC) has announced a Winchester drive test system priced as low as $9,995.

The T-650 reportedly can test the 5¼-in. and 8-in. Winchester drives, while the firm's previous models could only test one. Now the user can convert from one size drive to the other via the CRT terminal, utilizing software commands, the vendor claimed.

The unit's surface evaluation test will identify a problem down to the byte level. The T-650 also features an early/late margin window and single-window testing capability.

Prices range from $9,995 to $12,900 from the firm at 14272 Chambers Road, Tustin, Calif. 92680.

System Supports Up to 20 Users

(Continued from Page 99)

tems, Inc. includes file and automatic record locking; logon, password and privilege level capabilities; user accounting; keyed, direct and sequential files and multiple-user print spooling.

MP/M software from Digital Research, Inc. is available for running most CP/M-compatible software.

The system will be marketed primarily to OEMs with a 20-user system including Business Express software priced at $8,000 to $13,000. The company is located at 1601 Orangewood Ave., Orange, Calif. 92668.

Storage System Unveiled For TRS-80 Model II

ANAHEIM, Calif. — A hard disk mass storage system for the Tandy Corp. TRS-80 Model II that is said to allow users to derive "the full benefit" of Pickles & Trout's version of Digital Research, Inc.'s CP/M operating system has been announced by IQ Systems.

Called Graymatter, the disk system reportedly gives the user faster access and an enlarged data base and complete file-to-file analysis/reporting at a low cost-per-byte of data storage. The system can be grafted into the Model II in under an hour.

The 5M-byte version costs $1,895; the 10M-byte version costs $2,495; and the 20M-byte version costs $3,695, all of which are said to be expandable. IQ Systems is located at 2931 La Jolla St., Anaheim, Calif. 92806.

'SX-530' Enhanced For DEC Disk Drives

ORANGE, Calif. — Wilson Laboratories, Inc. has enhanced its SX-530 disk memory tester to operate on Digital Equipment Corp. RM02, RM03 and RM05 disk drives.

The unit automatically reads and writes in five formatted modes. The unit costs about $2,700, the vendor said from 2237 N. Batavia St., Orange, Calif. 92665.

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THE THREE PERSONAL COMPUTERS EXPERTS SAY "BLOW EVERYTHING ELSE OUT OF THE MARKET."

Once in a great while, personal computers come along that drive the normally staid computer press to extremes of praise. The personal computers made by Digital Equipment Corporation are such an example. These are the personal computers about which industry analysts such as The Yankee Group have said: "... comparing other currently available personal computers to (Digital's) Professional series is like comparing a sub-compact car to a Porsche."

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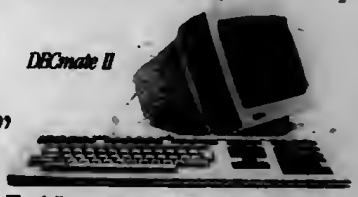

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Dictaphone Unveils Word Processor With Data Retrieval

RYE, N.Y. — Dictaphone Corp. has announced the System 6000, a word processor with data retrieval features.

The unit fully integrates word processing and information management. It comes with specialized software, called Straight Talk, that reportedly simplifies data retrieval, the vendor said.

To extend the capabilities of the System 6000 beyond those available with standalone units or multistation configurations, Dictaphone also introduced Omninet, a local-area network designed specifically for the System 6000. Omninet allows the System 6000 to be linked to other terminals and a variety of personal computer systems using the Digital Research, Inc. CP/M operating system, the vendor said.

The System 6000 word processor with Omninet is the core of the Dictaphone Integrated Office System. Information retrieval from sources other than the System 6000 is reportedly easily accomplished. In addition, the System 6000 terminal may be used to generate messages and information, giving the system an electronic mail capability, the vendor said.

A basic system including a half-page CRT screen, separate modular keyboard, double-sided, 5¼-in. disk drive and a daisywheel printer costs $5,950 from the vendor at 120 Old Post Road, Rye, N.Y. 10580.

Dictaphone System 6000

Dr. Jekyll or Mr. Hyde? Speakers Cover OA Future

Karen Nussbaum

Michael Dukakis

By Jim Bartimo
CW Staff

BOSTON — "There is a dual nature to automation, like Dr. Jekyll and Mr. Hyde," Karen Nussbaum, executive director of 9 to 5, the national association for working women, said. "And the question is, will automation be implemented to bring about a future that is better or worse for office workers?"

Speaking at 9 to 5's International Conference on Office Work and New Technology here last week, Nussbaum also said that the computer age "confronts society with grave dangers, dangers that all of us should be concerned about. Our task is to chart a way to turn these dangers into opportunities — opportunities for social progress.

"Though manufacturers say that centralizing tasks and rationalizing jobs is a thing of the past," Nussbaum continued, "the evidence remains — when clerical jobs are automated, two low-level jobs are created for every higher level job. Millions of women work under these conditions, and millions more will in the future."

Vendors, users, academicians and oth-

(Continued on Page 114)

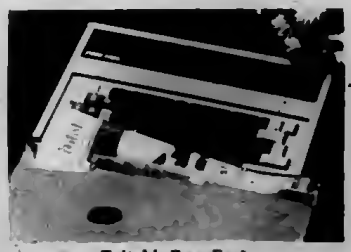
Taltek Unveils 2-lb Terminal

MONTREAL — A 2-lb, briefcase-size data communications terminal for under $400 has been announced by Taltek Electronics Ltd.

Pass-Port features a typewriter-style keyboard, a 40-char. display and memory storage equivalent to six pages of text. The unit reportedly automatically dials prestored numbers and interfaces with cassette recorders, CRTs or any parallel printer to record, display or print messages.

In the office, the terminal can function as a word processor.

The onit is officially certified for use with the Western Union Electronic Mail Services network. Taltek is located at Suite 302, 5858 Cote des Neiges Road, Montreal, Canada H3S 1Z1.



Taltek's Pass-Port

Bunker Ramo Introduces Micro

TRUMBULL, Conn. — Bunker Ramo Information Systems, an Allied Corp. company, has introduced a microcomputer for office automation functions including word processing.

The desktop computer is based on the Motorola, Inc. MC68000 microprocessor, which features 32-bit architecture and a main memory expandable from 256K to 1M bytes of random-access memory.

The microcomputer is available for about $6,000 from Bunker Ramo Information Systems, 35 Nutmeg Drive, Trumbull, Conn. 06609.

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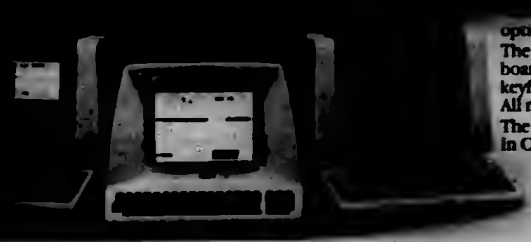

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Micro Offers Local Net Aids, Modified Unix

SAN JOSE, Calif. — Local networking software, a modified version of Bell Laboratories' Unix operating system, a 10-MHz central processor and assorted mainframe communications capabilities are all packaged together in a multiuser microcomputer announced here recently by Altos Computer Systems, Inc.

Altos' Model 586 combines a 16-bit Intel Corp. 8086 microprocessor with up to 1M byte of main memory, 20M bytes of disk storage and Microsoft Corp.'s Xenix operating system — a microcomputer implementation of Unix Version 7.

Together, the Model 586's hardware and software features allow the machine, in a basic configuration, to support a minimum of five concurrent users and to be expanded to accommodate as many as eight, an Altos spokesman said.

The microcomputer also supports both the Altos-Net and Ethernet local networking capabilities, which allow up to 32 of the machines to be interconnected with twisted-pair cable. Through the resulting local networks, more than 200 concurrent users can gain access to common files, send electronic mail and share expensive printers or other peripherals, the spokesman said.

A typical Model 586 comes with six RS-232 ports and can be upgraded to incorporate 10 such interfaces through the addition of a communications board that supports several popular IBM networking protocols plus the X.25 standard.

Except for the X.25 and SNA/SDLC capabilities, which are scheduled to be added next year, all the Model 586's advertised communications and networking features are said to be available now.

In addition to Xenix, the Altos product operates with most of the microcomputer field's "industry standard" operating systems, including Digital Research, Inc.'s CP/M-86, MP/M-86, Phase One Systems, Inc.'s Oasis-16, Microsoft's MS-DOS and Pick and Associates, Inc.'s Pick. The Model 586 also supports five programming languages — Basic, C, Cobol, Fortran and Pascal.

Altos sees its latest microcomputer offering as a direct competitor with Digital Equipment Corp.'s Professional series of personal computers and credits the Model 586 with providing five times greater throughput than the Professional family's entry-lavel member, the Rainbow system.

At present, the Altos machine can be configured either as a 586-2 with dual 5¼-in., 1M-byte floppy disk units or as a 586-10 with a single 5¼-in. hard disk unit, for a total storage capacity of 10M bytes. The addition of a second hard disk unit can turn the 586-10 into a 586-12, which holds 20M bytes of external storage.

The Models 586-2 and 586-10 cost $4,990 and $7,990, respectively, and are available now from Altos at 2360 Bering Drive, San Jose, Calif. 95131.

Micro Zeros In on Local-Area Nets

SANTA CRUZ, Calif. — Alspa Computer, Inc. is offering a high-speed microcomputer designed to be the key building block for a local-area network.

Zero-Net is said to be unique in that any Zero station can be a network master or network remote. The Zero-Net features high-level data link control at 400K bit/sec over twisted-pair cable.

The Zero has 64K bytes of random-access memory, 2K to 16K bytes of erasable programmable read-only memory, two serial and two parallel ports, floppy disk controller, Zilog, Inc. Z80-based CTC counter-timer and Z80-based direct-memory access.

Zero's hardware design is designed for use with Turbodos, an operating system compatible with Digital Research, Inc.'s CP/M and MP/M operating systems.

Zeros installed with local hard disks will usually be configured to boot as network masters. Those without local disks will automatically boot as remotes.

Each Zero costs $1,195, Alspa Computer, Inc. said from 300 Harvey W. Blvd., Santa Cruz, Calif. 95060.

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October 27, 1982

Libra Word Processor Gets Trio of Updates

EATONTOWN, N.J. — Syntrex, Inc. has introduced a diskette option, an automatic pagination feature and a self-paced instruction course for Libra, the company's "mini word processor" for secretaries.

The diskette reportedly expands the internal storage of the Libra from 40,000 char. to 140,000 char. of removable storage. This option is priced at $600.

The automatic pagination feature offers both a print and preview mode of operation, the vendor said. In the print mode, the unit automatically places a user-specified number of lines on each page. The preview mode displays the page-ending decisions on the Libra's 25-line CRT screen for review and possible modification.

The instruction course is said to allow a user to learn the word processing system in less than two hours.

The Libra word processing system connects to an electronic typewriter and includes a 25-line CRT display and 40,000 char. of document storage. The system is available for $3,000 from Syntrex, 246 Industrial Way W., Eatontown, N.J. 07724.

Transmitter Ties Micro, System/34

WALTHAM, Mass. — Orion Software, Inc. has unveiled a product designed to enable the transmission of files between IBM's System/34 and the IBM Personal Computer using standard 2780/3780 binary synchronous communications (BSC) protocol transmission.

PC/34 consists of a 2780/3780 emulator package, control software, a synchronous communications board for the Personal Computer and Interface/34, a general-purpose software package for System/34 that facilitates connection of System/34 with a variety of word processors as well as other 2780/3780 devices, Orion said.

Users of PC/34 can establish transmit and receive sessions on the Personal Computer with data originating at the keyboard or from files stored on the diskette. Files may be received to the display, diskette or printer attached to the Personal Computer.

PC/34 costs between $1,500 and $4,500, depending on customer requirements at the System/34 level, Orion said from Suite 200, 400-2 Totten Pond Road, Waltham, Mass. 021543.

Text Processor Runs on HP-1000

WILMINGTON, Del. — A text and document processor designed for the Hewlett-Packard Co.'s HP-1000 computer systems that is said to use a set of English language software commands to prepare formatted reports and letters has been introduced by Data Base Logic, Inc. (DBL).

Words-1000 has text processing features including the insertion of variable fields in the text. This feature can also be used to modify letters and other user manuscripts.

Words-1000 is priced at $995 from DBL, Suite 88, 1601 Concord Pike, Wilmington, Del. 19803.

Northstar Line Gets WP Program

TORONTO — Integrated Computer Enterprises, Inc. has introduced a word processing program for its line of Northstar computers. Features include global search and replace, inline editing, multiple insertions and deletions, copy, left margin offset, page numbering, move and automatic page indication.

It requires 32K bytes of memory and one floppy disk drive. The North-Scribe program allows users with intelligent terminals that support page mode to use screen-add and screen-edit features.

The program is available in the U.S. for $29.96 from Integrated Computer Enterprises, Inc., Box 190, Station V, Toronto, Ontario, Canada M6R3A5.

Matrix Teleconferencing Receives Enhancements

BOULDER, Colo. — Cross Information Co. has announced a series of enhancements to its computer teleconferencing and electronic mail system called Matrix.

These improvements include an editor said to allow the user to create and use text and computer programs and access system-level commands and other applications.

The system also now allows users to communicate in real-time and allows advanced text and title searching.

Another option allows polling, voting and testing within a conference or throughout the system.

Matrix is available for $1,000/mo and these enhancements are offered at no cost. More information is available from Cross Information Co., Suite B, 934 Pearl, Boulder, Colo. 80302.

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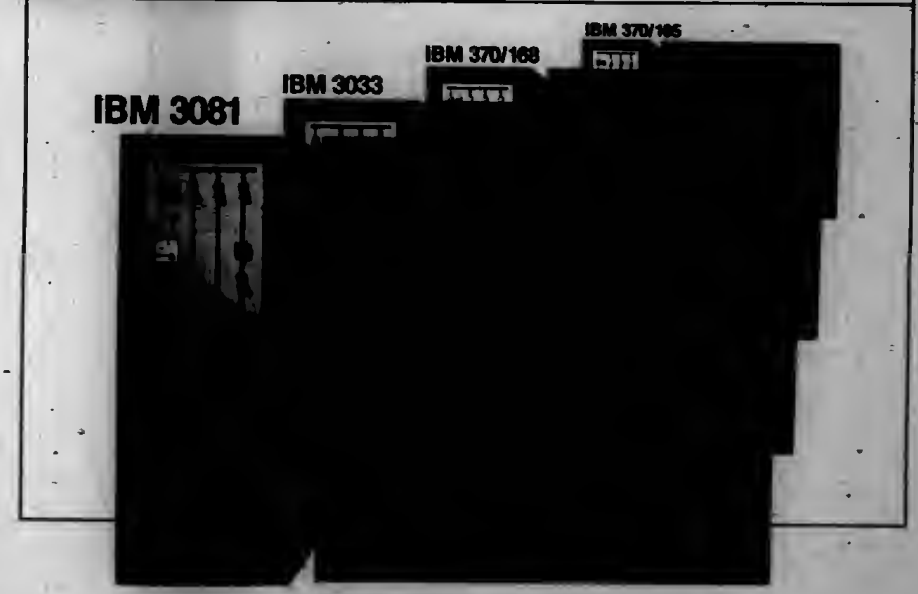

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Like to know more? Contact Murray Lazar, Director of Marketing. (914) 355-6741.

CONTROL SYSTEMS, INC.

Diablo Printers Announced For Use With Wang OIS, VS

BELLEVUE, Wash. — Applied Computer Sciences, Inc. is offering Diablo Systems, Inc. printers for use with Wang Laboratories, Inc. OIS and VS Systems. Applied has made the printers compatible by building special interfaces into them.

The first Diablo printers to be compatible with the Wang systems are the 630 RO and 630 KSR models, according to the vendor. The 630 prints 40 char./sec and was the first daisywheel printer to offer complete interchangeability between metal and plastic printwheels, Applied Computer Sciences claimed. The 630 RO costs $4,300 and the 630 KSR, $4,900.

The 630 ECS printer terminal is also available. The 400 char./sec daisywheel printer features print wheels that contain two rows of up to 96 characters each. From the basic setup to 192 alphanumeric characters and symbols, as many as 250 additional characters or graphics can be constructed, the vendor said. It costs $5,250.

The 620 prints up to 25 char./sec and features drop-in plastic print wheels with automatic ribbon and print wheel positioning sensors. It costs $2,250.

Applied Computer Sciences is located at 14218 21st St., Bellevue, Wash. 98007

Dr. Jekyll or Mr. Hyde? Speakers Peruse OA Future

Elisabeth Reinhardt

(Continued from Page 111)

ers seemed to concur that one factor to prevent the dangers of office automation is greater office worker involvement in the selection and implementation of an office system. "We've been in places where people get a memo on Friday saying that there will be a new system in place on Monday," said Roslyn Feldberg of Boston University's sociology department.

"I would go further than the idea of worker participation," said Lawrence Tesler, personal office system division, Apple Computer, Inc. "It would be to the worker's benefit to take the initiative." Tesler suggested that workers approach management with ideas about office systems even before it may be considering automation because, "the types of suggestions employees come up with don't eliminate jobs, they make jobs more efficient," he said.

Another Apple executive, International Marketing Manager Elisabeth Reinhardt said that problems lie elsewhere. "We will not have ergonomic systems until we have ergonomic software," she said. "Users don't know what they could be getting and therefore, what they could be asking for."

Defining Apple's philosphy as: "Let the technology adapt to the user," Reinhardt called for office systems that are fully integrated and therefore easier to use for office workers. "The industry has not realized how important the users are," she said. "We have not bridged the gap. We're half way across the river saying to users 'come — swim over to meet us half way.'"

Concurring that system design needs improvement, Lucy Suchman of Xerox Corp.'s Palo Alto Research Center said that much of today's technolgy relies on a highly subjective criterion, common sense, to justify its ease of use. "Instructions really never tell you what to do," she said. "Designers provide a series of clues and rely on the user to discover [the actual operating procedure]," she maintained.

Former Massachusetts governor Michael Dukakis offered his support to the group on the subject of health and safety standards for office equipment. "Because this state is a high technology leader, we have a special obligation to make this equipment safe," Dukakis maintained.

"We have a habit in this country of waiting until a problem hits us between the eyes," Dukakis maintained. "You are here to get workers and mangers talking now, cooperatively and sensitively, about the steps that ensure occupational health and safety in an environment that is so very different from a construction site or a factory."

An example of users organizing to create automation standards in Sweden was given by Berit Westman, union representative of the Stockholm branch of Svensk Televerket. Workers at that company helped to establish better conditions for working on CRT terminals such as frequent break periods and better lighting, she said.

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Projected $15 Billion by 1985

Report: Rigid Disk Revenues to Rise 25%

MOUNTAIN VIEW, Calif. — Worldwide revenues for rigid disk manufacturers reached $6.3 billion last year and is projected to grow by nearly 25% this year, when those revenues will reach $7.9 billion, according to Disk/Trend, Inc.'s recently published "1982 Disk/Trend Report."

By 1985, this portion of the storage industry is expected to reach the $15 billion mark.

Continuing to replace removable disk formats, rigid disks captured about 68% of worldwide shipments last year and their share is expected to reach nearly 90% of shipments by 1985.

Despite this impressive overall growth rate, the report found that worldwide revenues for this year will fall below anticipated levels. James N. Porter, publisher of the report, noted that the reason for the shortfall is twofold. Several older disk drive configurations are declining faster than expected and the continuing worldwide recession has delayed new system introduction plans of many manufacturers, particularly in the mid-size and large systems.

The most impressive growth in fixed disk drives will occur in systems with storage capacity of more than 500M bytes, the report said. During 1981, this group captured about 21% of total shipments of fixed disks, but by 1985 this group will account for nearly 45% of shipments, with IBM and the plug-compatible manufacturers dominating shipments, the report said.

(Continued on Page 118)

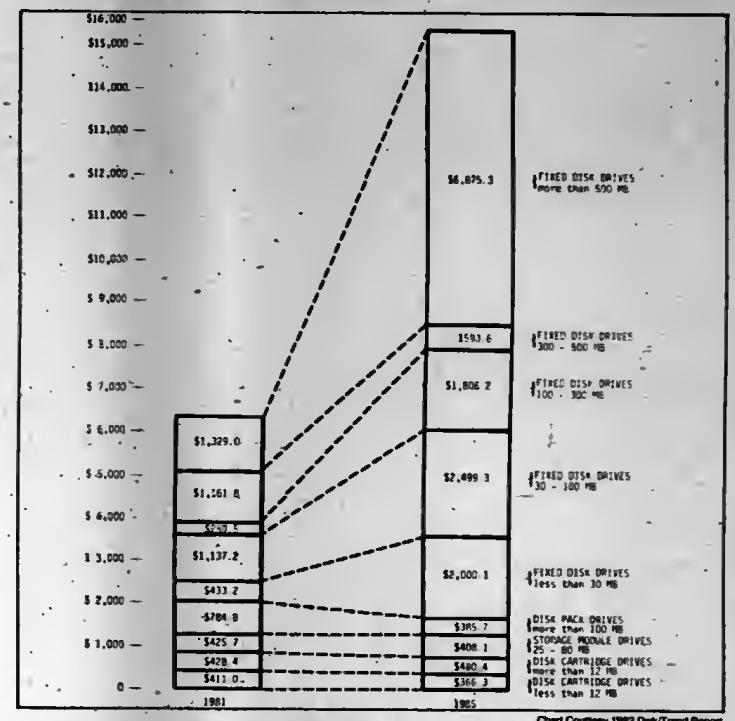

Chart Courtesy 1982 Disk/Trend Report

Consolidated Worldwide Disk Drive Shipments

Some Face Copyright Forfeiture by Dec. 31

By Allen R. Grogan
Special to CW‡

Some authors, publishers and distributors of computer software may be facing irrevocable forfeiture of copyright if that software is not registered with the U.S. Copyright Office by Dec. 31.

If a software package has been distributed as early as Jan. 1, 1978, and copyright notices were not placed on all copies distributed at that time, failure to register the program with the Copyright Office by the end of 1982 may inject the software into the public domain.

Under copyright law, copyright subsists in a work of authorship from the moment it is first created and fixed in a tangible medium of expression, regardless of whether steps are taken to register the work with the Copyright Office. Thus, generally speaking, copyright registration is permissive rather than mandatory. However, the copyright law contains potential traps that may result in invalidating copyright protection when copyright notices have been omitted from publicly distributed copies and the work is not registered with the Copyright Office.

Until recently, many authors, developers, publishers and distributors of software did not view copyright as a potentially meaningful form of legal protection for software. Consequently, many programs have been distributed at one time or another without copyright notices. It is now becoming apparent, however, that copyright law can be used successfully to protect against some forms of misappropriation and may provide significant rights and remedies against software pirates.

(Continued on Page 124)

A Way to Keep Computers on the Right Track

John Beall & Company, Inc.

Wang Reports Gains in Earnings, Revenues

CW Photo by B. Laberis

Dr. An Wang

By Bill Laberis
CW Staff

LOWELL, Mass. — The recession has clearly not come to roost at Wang Laboratories, Inc., where a growth of 35% in revenue and 37% in earnings for fiscal 1982 was reported at the company's recent annual meeting. These figures were complemented by a 39% jump in the first quarter profits for fiscal 1983.

Just as important as the earnings picture, Wang reported new orders in the first quarter up 32% over last year, an indication that the company's immediate future is a bright one.

"The company performed well in an environment characterized by a worldwide recessionary economy and an increasingly competitive industry," company founder and president Dr. An Wang said.

Dr. Wang said the company will pursue a goal of 30% annual earnings and revenue growth, adding that there are no imminent plans to acquire any other companies to maintain this goal.

Asked if the company will expand further into potentially lucrative Third World markets, particularly the People's Republic of China, Dr. Wang said such markets are "too small now" to warrant any plans for manufacturing facilities there, acknowledging that he is carefully watching economic developments there.

"Our management team has now achieved depth and stability," said Dr. Wang, who is increasingly handing over the company reins to a management team that includes his son, Fred.

SCIENCE/SCOPE

Electronic circuits as complex as 100 Los Angeles street maps printed on a thumb tack are being developed for military systems of tomorrow. The so-called Very High Speed Integrated Circuits (VHSIC) will give military electronics systems a tenfold increase in data processing capability. These "super chips" will be more reliable and need less power than the integrated circuits now in use. Hughes is one of six firms involved in a tri-service progras to develop VHSIC. In addition to developing chips for various high-speed signal processing uses, Hughes will develop the VHSIC high-speed electron-beam lithography system to process the chips, a requirement of all VHSIC contractors. Hughes also will build a demonstration processor for a two-way system for Army troops to communicate among themselves and find and report their positions automatically.

A new PIN diode switch that achieves full band performance at either K or Ka band has joined the Hughes line of millimeter-wave transmitter products. The switches are single-pole, single-throw reflection type switches. They use advanced propagation techniques to cover full waveguide bandwidths. Minimum guaranteed isolation is 20 dB with associated insertion loss of less than 1 dB over the full K band and less than 1.5 dB over the full Ka band. Switching speed is less than 5 nanoseconds if switches are bought with a driver.

Multilayer printed circuit boards with up to 10,000 terminations are now being tested at a high rate and with minimum cost by Cinch-Graphik, an operation of TRW Electronic Components. The company uses a Hughes FACT® (Flexible Automatic Circuit Tester) system. The analyzer is completely programmable, with random access switching for automated continuity and leakage testing. In its semi-automatic mode, the system can test forty 6,000-termination multilayer boards per hour versus just 200 to 250 terminations by the old manual method. Also, the FACT system eliminated inspections based on a statistical sampling procedure because it can test every board in a fraction of the time previously needed.

New fiber-optic connectors feature superior characteristics to meet stringent military requirements. The connectors' ultra low insertion losses and excellent durability have been proven in testing of 1000 mating and unmating cycles. A combination of split tube and special bushing provides for precise axial and angular alignment as well as interface gap control. A single connector can accommodate fibers ranging from 100 microns to 1.16 millimeters in size. Several types of standard connectors are available.

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Germans Buy Two Crays

Cray Research, Inc. has signed contracts worth a total of approximately $8 million with two research firms in West Germany for the purchase of Cray-1/S systems. The firm will install a Cray 1S/1000 at Deutsche Forschungs und Versuchanstalt Fuer Luft und Raumfahrt, a government center for aerospace and aircraft design, this month. The University of Stuttgart will take delivery of a Cray-1 system in late 1983.

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In First Half of '82

Venture Capitalists Invest $700 Million: Report

WELLESLEY-HILLS, Mass. — The prevailing economic doldrums in the first half of this year did little to deter the funding of private, independent venture capital firms, during which time 33 funds attracted over $700 million in new capital commitments. The majority has been funneled into high-technology companies.

This 1982 growth in venture capital funds followed a record-setting $1.4 billion invested by venture capital firms in 1981, a 27% growth over 1980, according to the *Venture Capital Journal*.

About 62% of 1981's equity-related venture capital financing rounds went to computer, communications, electronics-related or industrial-related companies, according to the report.

And it is the high-tech states — California, Massachusetts, Texas and New York — that are receiving most of this swelling pool of investment capital, the journal continued.

In the journal's annual review of venture capital in 1981, the eight investment areas believed to hold the greatest developmental potential included the following:

• Application software, in which the journal noted "explosive growth of venture capital investment in 1981."

• Computer graphics, in which "continuing growth potential is evidenced by the number of venture-backed start-ups financed."

• Customized semiconductors, an area that continued to attract "significant investment, maintaining its bright outlook in an otherwise dim year for semiconductor manufacturers."

• Data communications, with a venture investment accent on components and subsystems.

• Robotics, in which venture investments have focused on vision and sensing capabilities that "will be key elements in the future development of this industry."

• Satellite communications, a developing area "beginning to attract venture capital involvement and [which] may be poised for major growth in the 1980s."

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Rigid Disks Growing In Revenues

(Continued from Page 115)

The newest drives in this category are IBM's 3370, 3375 and 3380 units; announced but as yet undelivered plug-compatible units; and similar products from other vendors.

IBM is expected to ship 11,000 of its 3380 spindles, 14,500 3370 spindles and 9,000 3375 spindles this year on top of 34,000 spindles for its 3350 units. Disk/Trend forecast that IBM would have its latest three models of rigid disks in high gear next year, shipping 63,000 spindles of those models.

Porter noted that if plug-compatible drive makers get their equivalent products out the door as scheduled during 1983 they will be able to "head off annihilation by a narrow margin."

Of all plug-compatible drives shipped last year, Storage Technology Corp. held a 53.3% share with 9,700 spindles, Memorex Corp. held 22% with 4,000 spindles and Control Data Corp. held 19.2% with 3,500 spindles shipped, the report said.

As for technology, Porter considers it unlikely that IBM will introduce any new recording technology for large disk drives in the next year.

Currently there are 70 manufacturers of rigid disk drive products, with 45 of them based in the U.S.

The report is priced at $1,260 for both the rigid disk and flexible disk volumes and $840 for the rigid disk report.

Disk/Trend is located at 1224 Arbor Court, Mountain View, Calif. 94040.

How to take the strain off your mainframe with Electronic Filing from Kodak.

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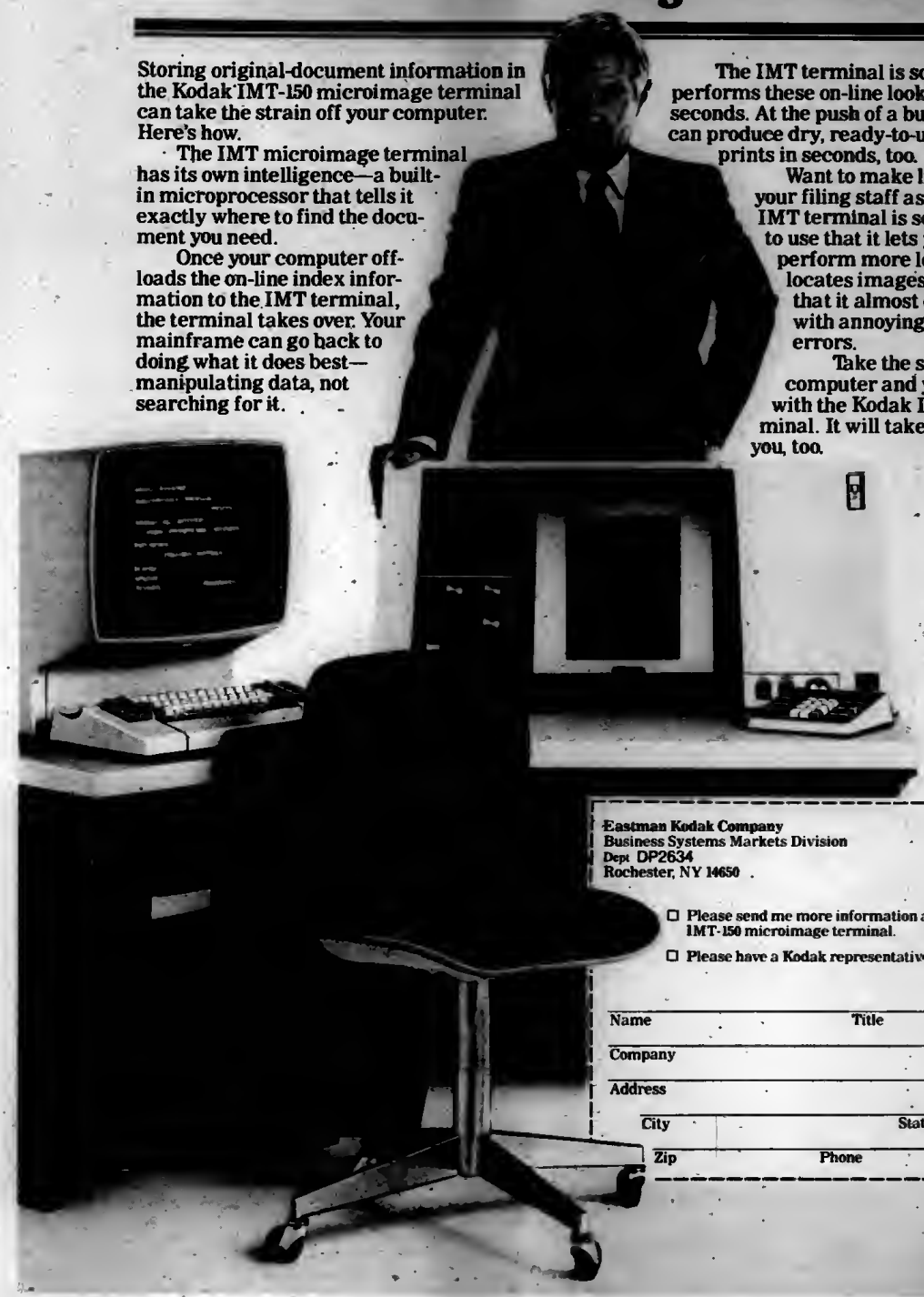

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Cullinane To Acquire Graphics Firm

WESTWOOD, Mass. — Cullinane Database Systems, Inc. will acquire Computer Pictures Corp., the Boston-based specialist in analytical and graphics software for microprocessors and personal computers, Cullinane has announced.

The $14 million cash deal will provide "an ideal combination to respond to the proliferation of personal computers and desires of users to interconnect with central data bases maintained by Cullinane's IDMS [integrated data base management system]," said John Cullinane, company president. The boards of both companies must approve the intended acquisition.

By the terms of the agreement, Cullinane will develop application software, graphics options, interfaces and summary procedures that reportedly will allow applications running under IDMS to communicate with Computer Pictures' Trend-Spotter packages. Trend-Spotter targets as its users top executives and other non-DPers or department managers.

ISA Changes Strategy

ATLANTA — Insurance Systems of America, Inc. (ISA) announced it will drop certain products from its marketing offerings and concentrate on product development activities for financial services industries.

As a result of the company's move, 40 to 50 staff positions have been cut.

James Potter, ISA president, said the canceled products were under development and as such had not been marketed. They include a group administration system for the insurance industry and a claims payment system for medical insurers.

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1982 Earnings Drop Below 1981 Levels

STC Lays Off 400, Blames World Recession

LOUISVILLE, Colo. — Storage Technology Corp. (STC) has trimmed 400 non-manufacturing positions from its 13,800-person work force during the company's first mass layoff since its foundling 13 years ago. A company spokesman said the laid-off workers will be called back "as economic conditions improve."

The company has also announced that its 1982 earnings will be dropping below 1981 levels, off by up to 13% to about $75 million. Gross revenues, on the other hand, will likely show a 19% increase over the 1981 figures, up to about $1.1 billion from $922 million. Third-quarter earnings for the current year will be in the range of 45 cents to 50 cents per share, down from 71 cents per share from the third-quarter last year.

The continued worldwide recession is being blamed by company officials for both the reduced earnings mark and the layoffs.

A spokesman said STC is studying possible reductions in the 2,750-member overseas work force, but declined to elaborate. Company Chairman Jesse Alweida said the strength of the U.S. dollar abroad has caused an unfavorable earnings impact from the company's export business.

On a brighter note, the spokesman noted the company's 8380 disk drive, designed to compete with IBM's new 3380, will be ready for shipment as planned the first quarter of next year.

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DEC Profits Fall 36%, First Drop in Seven Years

MAYNARD, Mass. — The world's leading minicomputer manufacturer posted its first quarterly earnings slide in seven years, a 36% drop over the same period last year.

Digital Equipment Corp. earned $55 million or $1.02 per share for its first quarter, down from the $89 million or $1.60 per share during the first quarter of its last fiscal year. Revenues for the period were up 10% to $927 million, compared with $839 million a year ago, the company reported.

DEC attributed the earnings drop to new product development and start-up costs associated with the company's personal computer, announced earlier this year.

Alfred Bertocchi, DEC vice-president, finance and administration, said several hundred units have been delivered to large users, with others scheduled to hit the retail outlets by the end of this month. Andy Knowles, Small Systems Group vice-president, said manufacturing and distribution of the system is "on schedule."

Otherwise, DEC officials said sales were flat for the quarter, except for the VAX-11/730 system, two new mass storage devices and office automation products.

The company also reported an increase in research and development efforts to $101 million in the quarter, a $27 million increase over the same period last year.

Study: Printer Mart To Grow 18.8%/Year

SAN JOSE, Calif. — The worldwide market for computer printers will increase from $5.7 billion in 1981 to more than $13 billion by the end of 1986, reflecting a compound annual growth rate of 18.8%, according to a study by Creative Strategies International, Inc.

Nonimpact technologies based on matrix character formations will see the fastest growth. Serial solid-character printers will show the fastest growth of the impact printer segments.

The study costs $1,450 from the firm at Suite 275, 4340 Stevens Creek Blvd., San Jose, Calif. 95129.

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TEXPRINT

Subscription-Based Service

Business Springs From Futile Software Search

By Roger Beynon
Special to CW‡

SAN ANTONIO, Texas — When Tim Shirley gave his first interview to the press last April, his company was 90 days old and, as Shirley now admits, "60 days away from bankruptcy."

That Sofsearch International, Inc. should have emerged six months later projecting 1983 revenues at $10 million is, in large part, due to Shirley's gift of "serendipity."

In the summer of 1981, Shirley was vice-president and treasurer of Unilife Insurance Co. He was also spreading his entrepreneurial wings over a venture, then called CCS, Inc., to provide San Antonio with its first completely automated office building.

The concept of tenants paying for data processing, word processing, electronic mailing and advanced communications facilities "as part of the rent" had been successfully realized elsewhere, especially in Houston.

What did pose a problem was selecting the computer best suited to accommodate the needs of a diverse gathering of tenants. Lawyers, doctors, realtors, insurance agents and accountants all want something different from a computer and all need special software applications. "We realized," Shirley said in retrospect, "what a pain it was finding what software was out there."

The software directories available were regularly out of date and far too narrow in scope. Hardware manufacturers could rarely supply a comprehensive listing of products available for use on their machines.

Shirley's serendipity soon gave way to insight when he projected his own predicament onto a national scale. If the problem was widespread, so then must be the demand for its solution. That demand, Shirley now realizes, is limited only by the number of organizations and individuals who use computers.

Company Transformation

Abandoning his idea of the automated office building, Shirley transformed the company into a subscription-based service providing custom reports on specific software products. Sofsearch eased into the marketplace last January.

Shirley's firm built a data base, which operated on an IBM System/34, from more than 20,000 software products, ranging from Pac-Man to the esoterics of "hydrology and dirt balancing," supplied by over 6,000 vendors. Sofsearch furnishes computer users with a full list of the programs or packages that will satisfy performance requirements.

Adding to this basic information, Sofsearch then provides one-page reports that contain a software product name and description, supplier name and address, telephone number and sales contact, the vendor's service area, product functional type, the necessary operating system and memory requirements for the computer, the language the program was written in, the number of current users of the product and a breakdown of the pricing information. The reports are updated quarterly.

(Continued on Page 126)

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Register Copyright by Dec. 31 or Lose It

(Continued from Page 115)

Copyright protection may be particularly important if adequate steps have not been taken to preserve the confidentiality of the software or where the sheer number of copies marketed may raise doubts about the existence of trade secrets.

In addition, although some recent cases suggest that trade-secret law is not entirely preempted by copyright law, under certain circumstances copyright law rather than trade-secret law may be critical if trade-secret claims and copyright claims either overlap or conflict.

If proper copyright notices have not been affixed to all copies of software that have been publicly distributed by the authority of the copyright owner, the copyright will be invalidated unless:

- The notice has been omitted from no more than "a relatively small number of copies" distributed to the public.
- The notice has been omitted in violation of an express written requirement by the copyright owner that notices be placed on all copies publicly distributed.
- Registration of the work in the Copyright Office is made within five years after publication without notice and a reasonable effort is made to add notice to all copies distributed to the public in the U.S. after the omission of notice has been discovered.

Determining Violations

Whether copies have been distributed without copyright notices in violation of an express written requirement imposed by the copyright owner will generally be relatively easy to determine.

Determining whether more than "a relatively small number of copies" have been distributed without notice is difficult because the law offers very little guidance as to the interpretation of the phrase "relatively small number of copies."

The new copyright law, which went into effect Jan. 1, 1978, brought about a major change in this area. Publication without notice after that date no longer automatically results in an irrevocable loss of copyright, but if more than a relatively few copies are distributed without notice, the work will enter the public domain if it is not registered within five years.

Because the standards for what constitutes a "publication" of software and what constitutes a "relatively small number of copies" have not been clearly defined, in doubtful cases a copyright owner may be running a substantial risk of forfeiting the copyright by failing to register within five years after the occurrence of the earliest event, which might be determined to constitute a publication without notice.

Thus anyone who is currently distributing a software package that was publicly distributed without copyright notices at any time subsequent to Jan. 1, 1978 should consider copyright registration prior to the expiration of five years from the date that a publication without notice first may have occurred.

Before registering any software for copyright, a copyright owner should consider the impact registration may have on his or her ability to claim other forms of proprietary rights protection and should determine the appropriate means of accomplishing the registration.

However, failing to register software with the Copyright Office may result in forfeiting copyright protection forever if more than five years expire following a publication of that software without copyright notice.

Grogan is an attorney with the Los Angeles law firm of Blanc Gilburne Peters Williams & Johnston, specializing in contract, copyright, trade secret, tax, antitrust and other matters relating to the computer industry.

DG Revamps Consulting Aid

WESTBORO, Mass. — Data General Corp. has restructured software consulting services provided by its North American Systems Engineering Group to DG system users.

The new structure reportedly establishes three levels of software consulting service, which can be selected according to customer requirements. The firm also announced a new discount rate for consulting contracts and an increase in off-hours consulting rates.

The graduated consulting service consists of basic service for light technical activities and orientation sessions, $70/hour; standard service for the majority of consulting services, including installation, $80/hour; and premium service for highly specialized work such as systems design/analysis and communications consulting, $100/hour.

Off-hours service — before 8 a.m. and after 5 p.m. — has increased in price from $85/hour to $115/hour. All systems engineering consulting services are available on an hourly basis as well as a new discounted three-month and six-month contract basis. Previously, contracts were available for one week or for one, six or 12 months.

DG is located at 4400 Computer Drive, Westboro, Mass. 01580.

WHAT DO BIG HAVE AGAINST LIT

Little computers are giving more and more kinds of people a chance to work smarter. To project P&L and cash flow better. To create schedules and budgets better. To make better decisions. And the bigger a company gets, the more tempting it is for everyone to get their own personal machine.

There's just one problem. And every DP Manager and MIS Director knows what it is. In a bigger company, no one may be keeping track of the total cost of all those machines. (As affordable as one micro is, the cost of a company-full can be staggering.) And having a separate micro for each decision maker won't necessarily lead to better decisions.

So, while DP Managers and MIS Directors applaud the growth of computer-assisted decision making, they wonder if multiplying micros *alone* is the best solution.

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Adapso Files Brief in Apple Software Case

ARLINGTON, Va. — The Association of Data Processing Service Organizations, Inc. (Adapso) has filed a brief in a federal appeals court supporting Apple Computer, Inc.'s attempt to obtain copyright protection for its software.

The action follows a federal court's refusal to issue a preliminary injunction against Franklin Computer Corp., charged by Apple with software copyright infringement [CW, Oct. 11]. Apple appealed that ruling, which held that chip-embedded code may not be copyrightable.

In supporting Apple's appeal with its Oct. 22 amicus curiae brief, Adapso said the lower court's ruling would damage the computer software industry and may have "significant adverse effects on U.S. society generally.

" Even a narrow reading of the decision would interpret it to say that an operating system ... translated into object code ... and etched onto a computer chip or diskette is not copyrightable."

The brief added that the decision might even be interpreted to mean programs cannot be copyrighted in any form. Arguing that "a silicon chip is merely one medium on which a computer program can be fixed," Adapso said a program "is a copyrightable work of authorship, regardless of the language in which it is written and regardless of the medium in which it is fixed."

Arguing that copyright protection is a societal need, the brief noted the large sums of money needed for software development to "meet the explosive, pent-up demand for new programs" and to maintain the U.S. edge in software technology over foreign competitors, particularly Japan and France.

The association rejected the lower court's suggestion that some software is more properly protected by patent.

In sum, Adapso said, the appeals court should "recognize that computer programs are copyrightable, regardless of the language in which they are written or the medium on which they are fixed and regardless of whether they are described as operating systems or applications programs."

Judge Extends Ex-IBMers' Restraint

POUGHKEEPSIE, N.Y. — State Supreme Court Judge Abbot Rosenblatt last week extended a temporary restraining order prohibiting three former IBM employees from revealing any allegedly secret information about IBM's Series/1 line of minicomputers.

IBM filed suit against Lewis C. Eggebrecht, Peter J. Stearns and William Erdman, alleged principal owners of Bridge Technology, Inc., accusing the trio of misappropriating secret information on the Series/1.

Last week the court ordered attorneys for both IBM and the defendants to be ready to present depositions by mid-November for a trial at an as yet unspecified date. Attorney William Greer, who is representing Stearns and Eggebrecht, said he plans to argue that the defendants were selling information that IBM had already made public.

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End Users Seen In 'Driver's Seat'

By Bob Johnson
CW New York Bureau

NEW YORK — "The communications end user is now in the driver's seat when it comes to the future of the industry."

So said Ralph R. Johnson, president and chief executive officer of Cylix Communications Network, Inc., doring a recent interview here regarding the communications industry.

Discussing his company's recent acquisition by RCA Global Communications, Inc., Johnson said that because of this switch in-industry concentration from technology to the end user, Cylix will focus on positioning itself to offer users "full-service" communications capabilities.

"I think the user was in a back seat in the recent past. Now, however, it is the user who will have to be catered to because of the many communications options available and the number of vendors competing for his business," he stated.

Johnson explained that communications areas such as networking services are going to be major factors in determining which vendors will be successful. He added that data base technology will improve in the future, and this, coupled with cheaper and better equipment, will translate into an abundance of user networks.

Future plans at Cylix include multiple-host offerings in its network early in 1983. Other plans scheduled for 1984 and 1985 will involve electronic mail, data base applications in which Cylix will use its own central data base and AT&T Net/1000-like processing within the Cylix network.

Executive Corner

• Ronald N. Murray, former marketing and sales executive with Sperry Univac, has been named president of Digidyne Corp. Appointed vice-presidents were William Johnston, finance; Ray Manning, operations; and Steve Mason, field service.

• John M. Abraham has been appointed president of Condor Technology, Inc.

• Joel Stern has been appointed senior vice-president of Anacomp, Inc. He will be responsible for new financial consulting services Anacomp will be providing to the banking industry.

• George Pavloff has been named executive vice-president and chief operating officer at Tominy, Inc.

• Alexander R. DiVito has been appointed vice-president and technical director of the Software Products Group at CGA Computer Associates.

• Charles W. Ryle has been promoted to vice-president, U.S. marketing, and Gerald L. Peterson to vice-president, Marketing Division, at Tandem Computers, Inc.

• Gary E. Schmidt has been appointed vice-president, end-user marketing, at Artificial Intelligence Corp.

• R. William Thompson has been named to the new position of director, North American field operations, at Apollo Computer, Inc.

• Dr. William J. Spencer has been appointed vice-president of the Palo Alto Science Center, a unit of Xerox Corp.'s Palo Alto Research Centers.

• Hans Bassoe has been appointed president of Computer Composition International, following the resignation of company president, Bob Hardy. Bassoe served as president of the firm from 1976 to mid-1980.

• Andrea R. Skov-Gordon has been appointed vice-president, marketing; A. Richard Piehl, vice-president, research and development; and Peter A. Taylor, vice-president, finance, administration and personnel, at Logical Business Machines.

• E. Michael Mahoney has joined Sentinel Computer Corp. as vice-president/director of marketing.

Subscription Service Born From Search for Software

(Continued from Page 122)

The firm has recently introduced Sofselect, a service that covers not one specific model of computer but, rather, a range (for example, micros, minis) and is geared to first-time computer buyers who have only a general idea of what they need.

Sofselect establishes the means whereby hardware selection becomes a function of software suitability. It puts the cart solidly where it should be: behind the horse. Currently, the company supplies its subscribers with hard-copy output, but in the near future, Sofsearch plans to put its data base on-line.

The company expects to hit the $1 million mark this year and is projecting sales of $10 million next year. This eruption of sales activity is explained by two events. One of them was the arrival of a formidable former University of Southern California linebacker named Don Harrison as vice-president for marketing. When Harrison arrived, Shirley remembered, "he had nothing under him but a chair." Within one week, that was no longer the case. Harrison hired six people and organized the firm's current telemarketing operation.

The other momentous event was a tie-in with an Apple Computer, Inc. advertisement listing software available with the micro giant's systems. Apple's ad credited Sofsearch with providing the listing of software products and even included the company's telephone number. Consequently, Shirley's firm received free advertising when the Apple ad appeared in major U.S. magazines and newspapers.

The company has established three pilot franchise operations and anticipates setting up several more franchises next year.

Series of Courses To Aid OEMs

MONTROSE, Calif. — To help OEMs make the most of rapidly expanding manufacturing vertical markets, Mini-Computer Business Applications, Inc. (MCBA) and Business Technology Group, Inc. (BTG) will jointly offer education and consulting services for OEMs trying to establish themselves in this area.

BTG will conduct an ongoing series of classes and seminars on MCBA's manufacturing system, assist MCBA licensees with sales seminars and assist OEMs during installation with end-user courses. The courses will cover the functions and features of the software and the details of using the system in various types of manufacturing firms.

Further information can be obtained from MCBA, 2441 Honolulu Ave., Montrose, Calif. 91020.

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Mergers & Acquisitions

Sun Co. has signed an agreement for the sale of its data processing subsidiary, **Sun Information Services Co., Inc.** (SIS), to a group comprised of the senior management of SIS and a group of venture capitalists led by Welsh, Carson, Anderson & Stowe and J.H. Whitney & Co., both of New York.

National Semiconductor Corp. has sold its transducer business to **Sensym**, a new firm formed by a group of former National Semi employees headed by Dennis Dauenhauer, previously director of transducer operations at National Semi.

Facit, Inc. and Dataroyal, Inc. of Nashua, N.H., have merged and will operate under the Facit corporate name. Facit/Dataroyal will be used to designate the data products division of the company. Arrangements are being made to transfer Facit's administrative operations from Greenwich, Conn., to Nashua.

Continental Telecom, Inc. and **Cado Systems Corp.** have announced a modification of their previously announced agreement in principle for Continental to acquire Cado. Under the revised agreement, each Cado shareholder will receive .625 share of Continental common stock for each share of Cado stock.

Softsel Computer Products, Inc. has acquired a controlling interest in **Compuvision**, a manufacturer of a computerized software demonstration system. Compuvision is a division of Advanced Interactive Systems, Inc.

Electronic Data Systems Corp. (EDS) has entered the time-sharing market with the acquisition of the assets of the Eastern Region of **Optimum Systems, Inc.**

The assets include the Washington Data Center in Rockville, Md., less than four miles from EDS' Information Technology Group (ITG) headquarters in Bethesda, Md. Optimum Systems provides time-sharing services to numerous federal and commercial users in the Washington, D.C., area.

The IBM 3033s at the Washington Data Center offer industry-standard software throughout the U.S. via Tymnet, Inc. telecommunications and regional leased lines. The acquisition will become the Optimum Systems Division within ITG.

Orders & Installations

Honeywell, Inc. has been awarded an eight-year, $57 million contract by the U.S. Air Force for DPS/Multics systems, support equipment and services. The systems will be used by the Air Force Data Services Center to support budget preparation for the Air Force and the Department of Defense.

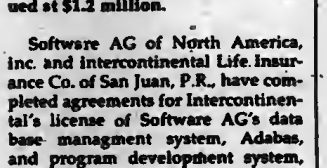
Diebold, Inc. has installed its security system MPS-1020 at the Bankers Trust Co. of New York's new 10-story operations center. The system provides visual and electronic monitoring of various points from a central console.

Geac Computers International, Inc. has signed a $1 million contract with the University of Houston to update its library's automated program through the installation of Geac's integrated library information system. The firm will provide 60 public access terminals, 40 circulation/cataloging terminals and two word processing CRT terminals, all accessing two linked Geac System 8000 computers.

Electronic Data Systems Corp. (EDS) has signed a contract addendum with HCA, Inc., a life insurance holding company, to provide information processing services for the Wabash Life Insurance Co. of Indianapolis. The agreement is part of a ten-year contract originally signed in 1978 for EDS to provide HCA with data processing and data center management. Terms of the contract were not disclosed.

Sperry Univac has received a contact from Holston Defense Corp. for a Sperry Univac 1100/60 computer system to replace existing equipment. The eight-year contract is valued at $1.2 million.

Software AG of North America, Inc. and Intercontinental Life Insurance Co. of San Juan, P.R., have completed agreements for Intercontinental's license of Software AG's data base managment system, Adabas, and program development system, Natural. Intercontinental is the first Puerto Rican company to license the software products.



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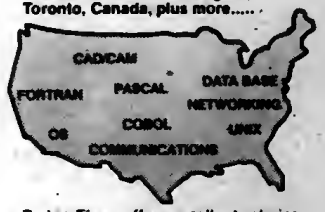

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Program in Computer & Information Science
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Hanover, NH 03755

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513 EIGHTH STREET OFFICE BUILDING
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We can offer you competitive salaries and comprehensive benefits programs, including bonuses and profit sharing. If you've been searching for a growth opportunity with a dynamic and progressive company with a Management team that puts people first... then DRC is your answer.

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An EOE M/F

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Qualified applicants should submit a resume and salary history to Andy Heck. All resumes will be treated in strict confidence.

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Is responsible for the direction and supervision of the University Appointment Processing Office which is the central personnel records office. Major responsibilities include overseeing the implementation and maintenance of the computerized records system; coordinating systems operations with budget and payroll functions; monitoring proper implementation of personnel transactions and collecting and analyzing personnel related data as required for studies and statistical reports.

Requires an individual with good analytical skills, knowledge of computer programming and statistics, sound judgement and effective interpersonal skills. Minimum qualifications: Bachelor's Degree in public or business administration, computer science, or related field with course work in computer science, statistics and information processing, and 3 to 5 years effective experience with some supervisory responsibilities. Salary negotiable. Send resume by December 10, 1982 to Dr. C. Harold Brown, Vice President for Personnel and Employee Relations, UNIVERSITY OF DELAWARE, Newark, DE 19711.

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Data Processing

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A B.S. degree in Business, Math or Computer Science plus two years of equivalent Systems Analyst experience. An equivalent combination of education and experience is acceptable. Must be able to work on all phases of Systems Analyst functions and have demonstrated ability to work well with user departments.

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Highly entrepreneurial co supporting the financial community is looking for an experienced manager to oversee their multi hardware mini computer installation. The successful candidate will have good management skills in a realtime environment. Must have good programming & design experience. Your skills must include the ability to be sensitive to customer needs and pull together the complex problem of a sophisticated realtime mini installation. Superior growth potential exists as company enters new market place. Fee Paid. **$40,000**

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If you have a well structured background in financial service and solid "hands-on" programming exp in both COBOL & FORTRAN, then this could be an oppty for you with a Wall Street service firm forming a new development group. Need DP telecommunication development area. Have Sigma VI to be converted to IBM ReaRime. Tremendous potential. Fee Paid. **$40,000**

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Salary to **$27,000**

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127 W. 10th St.
Kansas City, MO 64105
(816) 474-4563

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(408) 293-8040

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Coral Gables, FL 33134
(305) 447-1737

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Low 40's

SYSTEMS ANALYST

Prefer BSCS or BSEE and 5+ yrs exp in systems design analysis. Exp with ASSEMBLER and working knowledge of COBOL, PASCAL & FORTRAN IV are pluses. $32,000

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(305) 742-8200

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400 E. Anderson, #334
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(512) 836-9863

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100 Summer Street
Boston, MA 02110
(617) 423-1200

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Hartford, CT 06103
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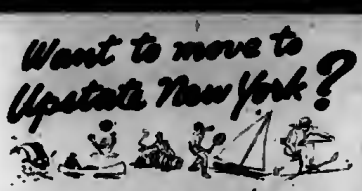

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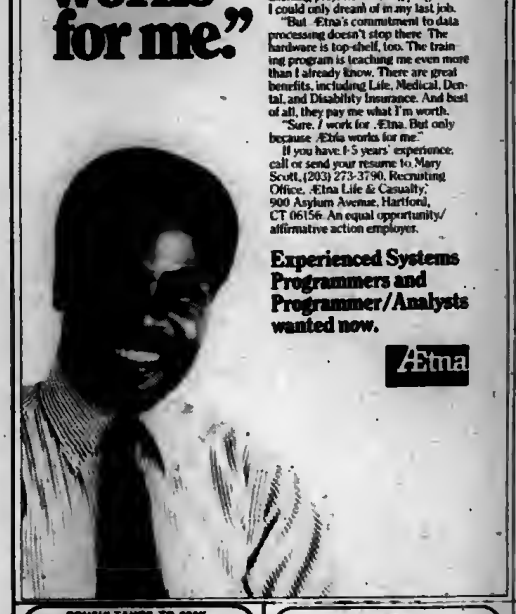

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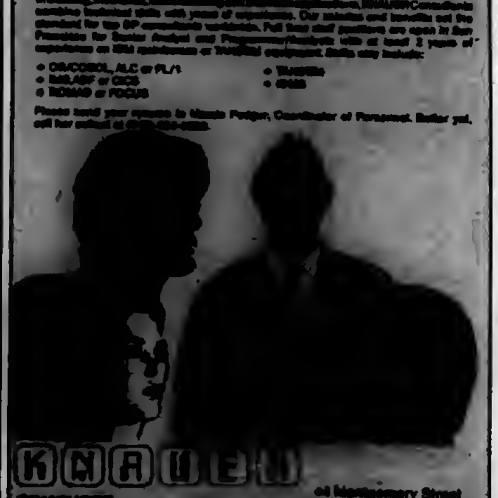
Please forward your resume to Wanda Perigo, Coordinator of Personnel. Better yet, call her collect at 415-956-0850.



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Instructor or Asst. Prof. in Quant. Methods/Comp. Sci. Fall 1983. Area: Computer science-programming languages, data structures, system software design including compiler, assembler, and operating systems construction. Qualifications: PhD or Masters with teaching experience and/or substantial professional experience; competent to teach undergraduate level courses (statistics, data processing, BASIC, FORTRAN, COBOL, PASCAL); adv. level courses (data mgmt. systems, software) and courses in the evening MBA program (statistics and seminars). St. Thomas is a Catholic Liberal Arts College with an undergraduate day and evening division, an evening MBA program and a Grad. Education program. Send resume and supporting qualifications to: Dr. Bernice Fold, Assoc. Prof., Quantitative Methods/Computer Science Department, College of St. Thomas, St. Paul, MN 55105.

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School of Business Administration
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Respond in confidence to:

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MBTA Personnel Department
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POSITION ANNOUNCEMENT DIRECTOR OF CENTRAL DATA AND INFORMATION SERVICES WEST VIRGINIA UNIVERSITY

Nominations and applications are invited for the newly created position of Director of Central Data and Information Services at West Virginia University.

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Nominations, applications, and supporting documentation will be accepted until December 12, 1982. The position will be filled as soon as possible after the application deadline. Applications, including an up-to-date vita and three references, should be sent to:

Professor Harold I. Goodwin, Chair
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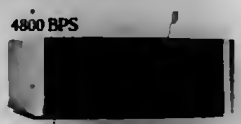

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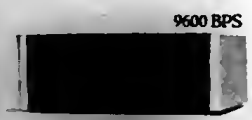

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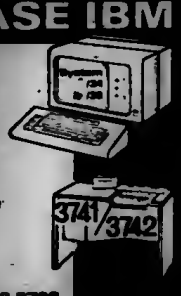

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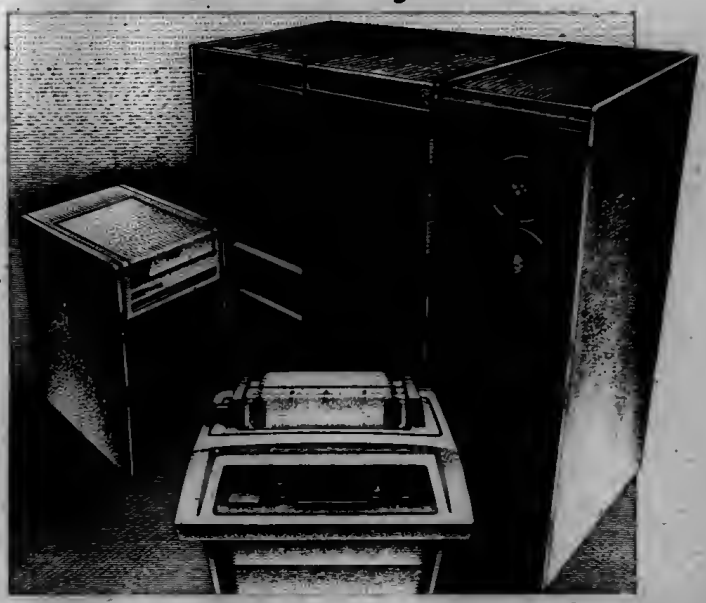

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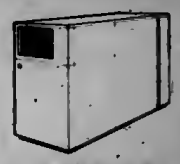

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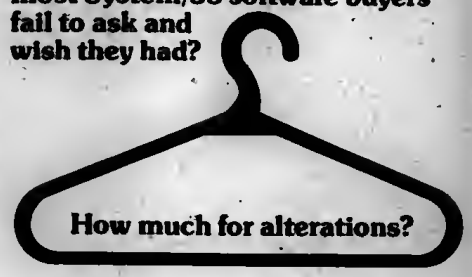

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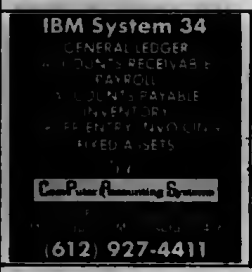

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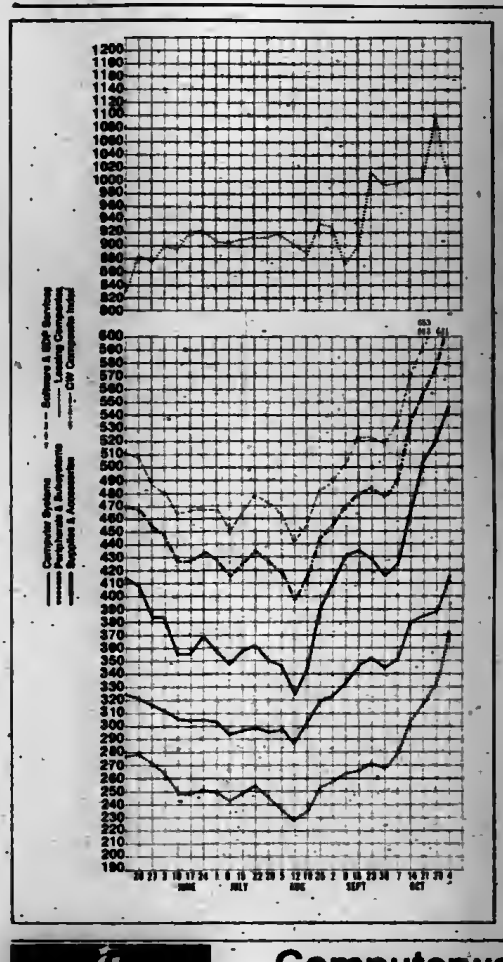

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CLOSING PRICES WEDNESDAY, NOVEMBER 3, 1982

SOFTWARE & EDP SERVICES

		1981-82 RANGE	CLOSE NOV 3	NET 1982 CHANGE	WEEK CHANGE	WEEK PCT CHANGE
O	ADVANCED COMP TECH	1- 2	1 3/4	- 0		0.0
O	ADVANCED SYSTEMS INC	8- 19	13 3/4	+1 3/4		+10.5
N	AIS COMPUTERS INC	7- 15	10 3/4	+2 1/4		+10.0
N	ANACOMP INC	9- 16	15 1/4	+1		+7.0
O	ANALYSTS INTL CORP	6- 8	7 3/4	+ 1/2		+6.8
O	APPLIED DATA RES.	18- 36	35 7/8	+3 7/8		+12.1
O	ASK COMPUTER SYSTEMS	12- 17	23 7/8	+ 5/8		+2.6
O	ASTROSYNE CORP IND	1- 2	1 3/8	+ 1/8		+9.6
N	AUTOMATIC DATA PROC	21- 31	28	- 5/8		-2.1
O	CDA COMPUTER ASSOC	9- 18	9	+ 3/8		+4.2
O	COMPUTER ASSOC INT'L	12- 36	34 1/2	+1 1/2		+4.6
O	COMPUTER HORIZONS	1- 3	3 3/4	+ 3/8		+20.0
N	COMPUTER NETWORK	6- 8	7 1/2	- 1/8		-1.6
V	COMPUTER SCIENCES	11- 18	17 1/2	- 1/2		+2.8
O	COMPUTER TASK GROUP	8- 15	13	+2 3/4		+26.8
O	COMPUTER USAGE	2- 4	3 3/8	+1 1/8		+50.0
O	COMPUTONE SYSTEMS	13- 27	27 1/2	+ 5/8		+2.3
O	COMTECH COMP	11- 19	16 3/4	+3 1/4		+6.8
O	COMVIEW	6- 10	7 3/4	+ 1/8		+1.6
N	CULLINANE DATABASE	24- 51	50 5/8	+3 7/8		+8.2
O	CYBORG SYSTEMS INC	9- 19	19	+1 3/4		+13.2
O	DATA DIMENSIONS INC	1- 3	1/4	- 0		0.0
O	DATAPAK	1- 4	7/8	+		+7.6
O	DYSTRON CORP	2- 4	0 1/4	- 0		0.0
N	ELECTRONIC DATA SYST	18- 45	44 1/2	+2 3/8		+6.0
O	INFORMATICS INC	10- 23	22	+2 3/4		+14.2
O	INFITT CORP	1- 3	1 5/8	- 0		0.0
O	ISC COMPUTER MARKET.	1- 2	1 1/8	- 0		0.0
N	KEANE ASSOCIATES	4- 8	4 1/4	- 0		0.0
O	LOGICON	12- 28	26 1/8	+2 1/8		+8.4
O	MNDT SCI AMER INC	10- 36	34 1/4	+ 1/2		+1.4
N	MATHEMATICS INC	12- 18	15	-2 1/8		-13.0
O	MATHEMATICAL APP GRP	12- 18	17	- 0		0.0
O	NATIONAL DATA CORP	19- 33	30 1/2	+ 1/8		+0.8
O	PANOPHIC SYSTEMS	9- 20	18 3/4	+1 1/2		+8.7
N	PLANNING RESEARCH	6- 10	10	+1 1/8		+12.6
O	PROGRAMMING & SYS	1- 2	1 3/8	- 0		0.0
O	REYNOLDS & REYNOLD	17- 27	27	+2		+8.0
+O	SCI CORP	21- 38	38 1/4	+4		+11.3
O	SHARED MEDICAL SYST	25- 48	48 1/8	+3 1/8		+6.0
N	SCIENTIFIC COMPUTERS	6- 11	11	- 0		0.0
O	SOFTWARE AG	9- 17	17 1/8	+1 1/8		+11.4
N	TYMSHARE INC	12- 30	21 1/2	-2 1/2		-10.4
A	UMS CORP	10- 14	11 1/4	+1 1/8		+11.1
N	WYLY CORP	7- 13	13 1/8	+ 7/8		+7.1

PERIPHERALS & SUBSYSTEMS

N	DH INTERNATIONAL	1- 15	1 7/8	+ 3/8		+50.0
A	ANDERSON JACOBSON	6- 10	10 1/4	+1 7/8		+10.8
O	AUTO-TROL TECHNOLOGY	6- 13	14 3/8	- 0		0.0
O	DAKTEC INC	7- 33	17	+3 1/2		+25.8
A	BEEHIVE INT'L	4- 8	7 6/8	+ 3/8		+10.7
A	BOLT, BERANEK & NEW	8- 30	30	+3 3/4		+14.2
O	CAMBEX CORP	3- 4	1 7/8	-1 0		0.0
N	CENTRONICS DATA CORP	8- 14	14	+1 1/2		+12.0
A	CETEC CORP	4- 8	8 1/4	+ 1/8		+2.4
O	COMMITRONICS	5- 8	8 3/4	1/8		+17.3
O	COMPUTER COMMUN.	1- 2	7/8	0		0.0

COMPUTER SYSTEMS

O	AMDAHL CORP	17- 35	35 1/4	+3 1/2		+15.1
N	BURROUGHS CORP	28- 58	49 3/4	+3 1/4		+7.3
O	COMPUTER AUTOMATION	7- 17	16 1/2	+1 5/8		+10.9
N	CONTROL DATA CORP	27- 41	41	+1 1/2		+12.3
N	CRAY RESEARCH INC	26- 41	40 1/2	+1 1/8		+2.8
N	DATA GENERAL CORP	26- 38	40 1/2	+1 3/4		+4.6
N	DATAPOINT CORP	11- 24	21	-		0.0
N	DIGITAL EQUIPMENT	62-103	98	+6 3/4		+6.1
A	ECCO INC	6- 10	8 3/4	+ 1/4		+2.8
A	ELECTRONIC MAGC.	7- 11	11 1/4	+ 7/8		+8.0
N	FLOATING POINT SYST	16- 31	29 3/4			+2.6
N	FOXBORO	23- 38	35 5/8	+1		+3.2
O	FULCRUM COMP GRP	1- 3	1/4	- 0		0.0
O	GENERAL AUTOMATION	3- 8	8 3/4	+ 7/8		+12.1
N	HARRIS CORP	20- 43	38	+3		+8.2
N	HEWLETT-PACKARD CO	36- 88	88 1/8	+5 5/8		+6.8
N	HONEYWELL INC	68- 95	86 3/4	+3 3/4		+4.0
N	IBM	48- 69	65 1/4	+3 5/8		+4.4
O	IPL SYSTEMS INC	5- 8	8 1/2	+1		+13.3
O	MADRUSON COMP SYSTS	2- 10	2 1/2	- 1/8		-4.7
N	MANAGEMENT ASSIST	7- 18	18 1/2	+ 3/4		+3.8
O	MINI-COMPUTER SYST	1- 4	1/4	- 1/8		-33.3
N	MODULAR COMPUTER SYS	8- 15	11 7/8	+ 5/8		+5.6
N	MOHAWK DATA SCI	14- 17	16 3/4	+2 1/2		+15.0
N	NCR	38- 87	87	+4 1/8		+5.1
N	PERKIN-ELMER	17- 29	23	+1 3/8		+6.7
N	PRIME COMPUTER INC	16- 35	33 1/2	+1 1/4		+3.8
A	SPERRY CORP	21- 37	30 1/4	+2 7/8		+10.5
O	TANDEM COMPUTERS INC	14- 34	31 1/4	+1 1/4		+4.1
A	TEXAS INSTRUMENTS	71-120	120 1/4	+7 3/4		+6.9
A	WANG LABS "A"	28- 43	42 3/4	+3 1/2		+7.1
A	WANG LABS "C"	21- 33	33	+3 3/4		+7.0

LEASING COMPANIES

O	BOOTHE FINANCIAL CP	22- 30	26	+ 1/4		+1.0
N	CONDISCO INC	13- 27	26 1/2	+ 3/4		+2.8
O	COMMERCE GROUP CORP	1- 1	1/4	+ 1/8		+33.3
O	COMPUTER INVSTRS GRP	6- 2	3/8	+ 1/8		+50.0
O	CONTINENTAL INFO SYS	9- 18	18	+2		+14.2
O	DPF INC	9- 13	8 7/8	- 1/4		-2.8
O	ITEL	1- 9	9/8	0		0.0
O	LEASPAC CORP	1- 2	1/8	0		0.0
O	U.S. LEASING	18- 32	34 1/4	+1 3/4		+5.3

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N	AMERICAN BUS PRODS	14- 19	17 3/4	+1 1/8		+7.5
O	BALTIMORE BUS FORMS	1- 1	1 1/4	-		0.0
O	BARRY WRIGHT CORP	13- 20	18 1/2	+ 1/2		+2.8
O	CYPERNETICS INC	1- 1	1	-		0.0
O	DUPLEX PRODUCTS INC	15- 30	18 3/4	+ 7/8		+8.0
N	ENNIS BUS. FORMS	18- 29	28 3/4	+2 3/8		+10.0
O	3M COMPANY	69- 79	78 1/2	+4 1/2		+6.0
N	MOORE CORP LTD	29- 40	40	+3 1/8		+8.8
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